MARICOPA COUNTY
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DRAFT TDN

New River West Tributaries FDS

Volume II of III

CTP Cooperating Technical Partners

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Mapping NEEDS ASSESSMENT PROCESS

Assessing the Flood Mapping Needs for America's Communities

U.S. DEPARTMENT OF HOMELAND SECURITY

Prepared for
Maricopa County
Flood Control District

Flood Control District of Maricopa County

Prepared by
URS

FCD 2003 C057

September 2005

APPENDIX D: HYDROLOGIC ANALYSIS SUPPORTING DOCUMENTATION

Digital Files For
New River West Tributaries
Floodplain Delineation Study
Contract FCD 2003C057

This CD contains digital files used in the floodplain delineation study identified above. Both the hydrologic and hydraulic calculations are provided. The hydrology was performed using WMS 7.0 and HEC-1 as outlined in the Section 4 of the Technical Data Notebook. Hydraulic calculations were performed using WISE 2.0.8 as outlined in Section 5 of the Technical Data Notebook.

The files on this CD match the information in the Technical Data Notebook at the time of the CD creation prior to submission to FEMA. Any person using these files should verify that they match the FEMA approved floodplain delineation. URS Corporation does not accept any responsibility for the use of these files.

Hydrology

basin_a_6hr.hc1	HEC-1 input file
basin_a_6hr.doc	HEC-1 output file in a word document
basin_a_24hr.hc1	HEC-1 input file
basin_a_24hr.doc	HEC-1 output file in a word document
basin_b_6hr.hc1	HEC-1 input file
basin_b_6hr.doc	HEC-1 output file in a word document
basin_b_24hr.hc1	HEC-1 input file
basin_b_24hr.doc	HEC-1 output file in a word document
basin_c_6hr.hc1	HEC-1 input file
basin_c_6hr.doc	HEC-1 output file in a word document
basin_c_24hr.hc1	HEC-1 input file
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basin_f_24hr.hc1	HEC-1 input file
basin_f_24hr.doc	HEC-1 output file in a word document

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basin_j_6hr.hc1	HEC-1 input file
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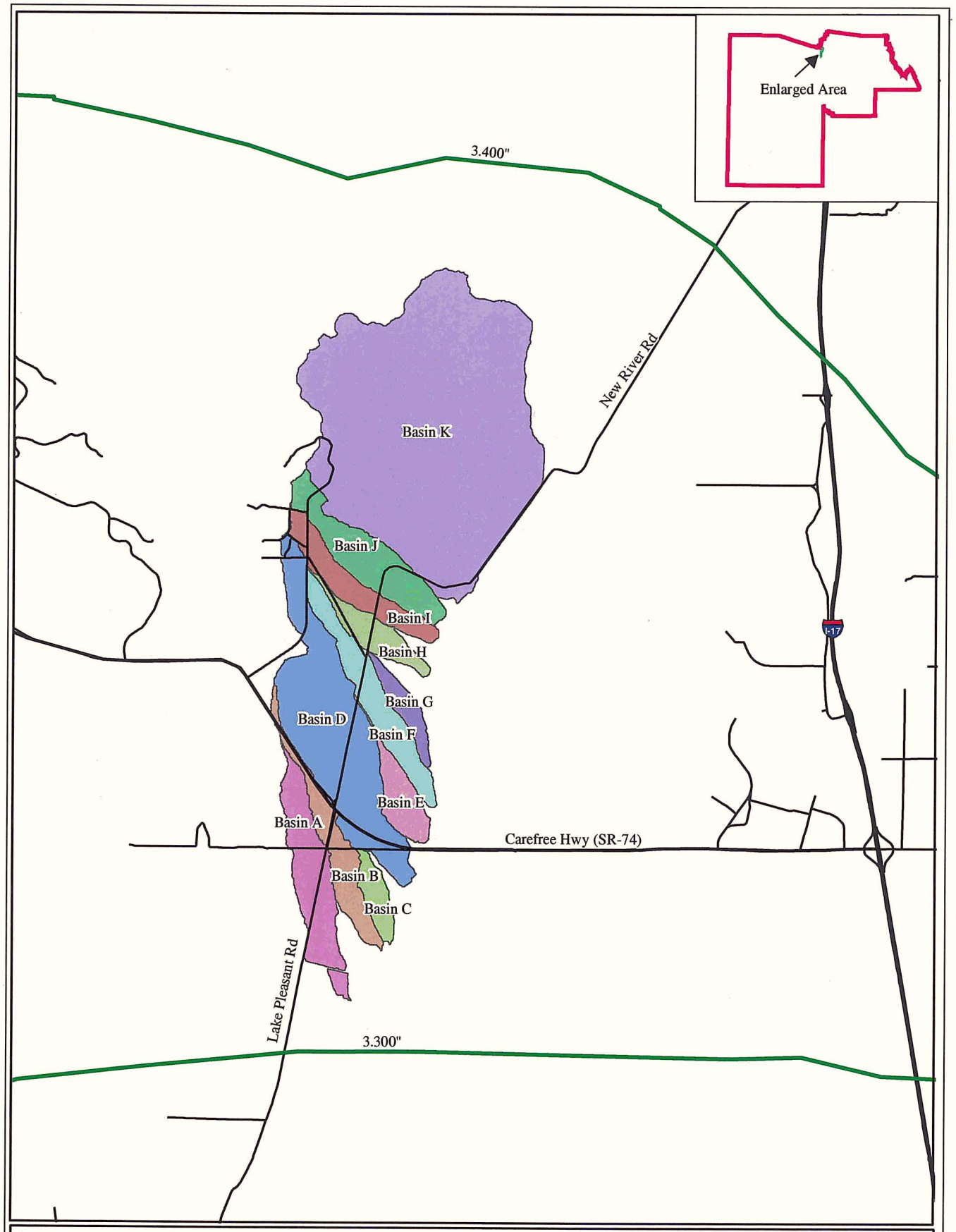
basin_k_6hr.hc1	HEC-1 input file
basin_k_6hr.doc	HEC-1 output file in a word document
basin_k_24hr.hc1	HEC-1 input file
basin_k_24hr.doc	HEC-1 output file in a word document

Hydraulics

NRW5.prj	HEC-RAS model
NRW10.prj	HEC-RAS model
NRW15.prj	HEC-RAS model
NRW20.prj	HEC-RAS model
NRW25.prj	HEC-RAS model
NRW30.prj	HEC-RAS model
NRW35.prj	HEC-RAS model
NRW40.prj	HEC-RAS model
NRW45.prj	HEC-RAS model
NRW50.prj	HEC-RAS model
NRW55.prj	HEC-RAS model
NRW55T25A1.prj	HEC-RAS model
NRW55T25A2.prj	HEC-RAS model
NRW55T25A3.prj	HEC-RAS model

D.1 PRECIPITATION DATA



Data Sources:
U.S. Dept of Commerce
NOAA Hydrology
NOAA Atlas 2 Volume VII
ALRIS

Date: 06/29/04
MCFCD Proj. No: FCD 2003-C057
URS Project No: 23443706
PM: MR
Checked By: MM
Cartography: DG

Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD29

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N

Not to Scale

LEGEND

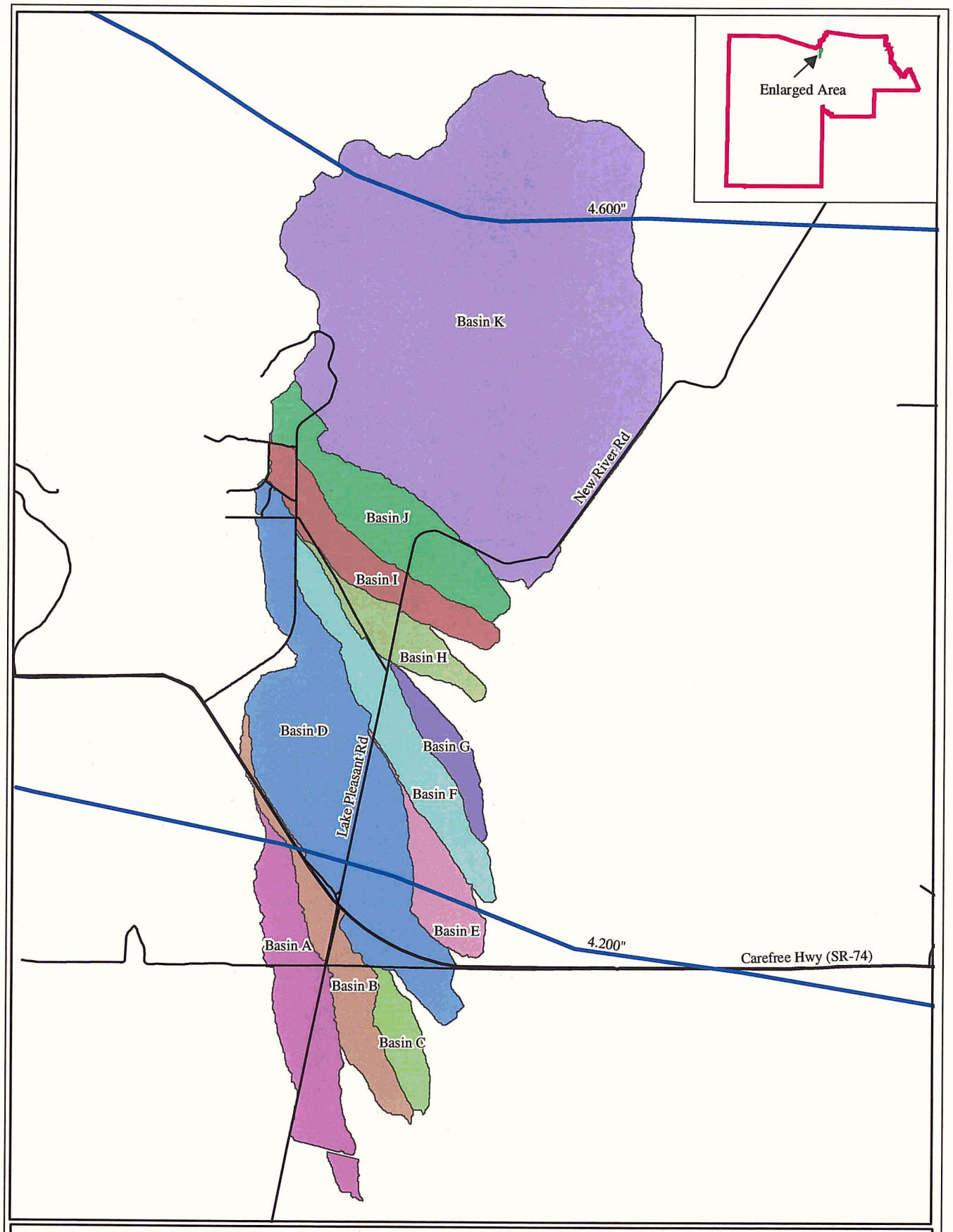
Major Roads

100-YR 6-HR Precipitation Isopluvial

New River West FDS
100-YR 6-HR
Precipitation
Isopluvials Map

URS

Exhibit D.1.1



Data Sources:
U.S. Dept of Commerce
NOAA Hydrology
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Date: 06/09/04
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Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD29

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N

Not to Scale

LEGEND

100-YR 24-HR Precipitation Isopluvials

Major Roads

New River West FDS
100-YR 24-HR
Precipitation
Isopluvials Map

URS

Exhibit D.1.2

D.2 PHYSICAL PARAMETER CALCULATIONS

Land Use Parameters

Supplied by MCFCD for use with Landuse Coverages in WMS 7.0

110,"Rural Residential (<= 1/5 du per acre)",0.30,5,30,"normal"
120,"Estate Residential (1/5 du per acre to 1 du per acre)",0.30,5,30,"normal"
130,"Large Lot Residential - Single Family (1 du per acre to 2 du per acre)",0.30,15,50,"normal"
140,"Medium Lot Residential - Single Family (2-4 du per acre)",0.25,30,50,"normal"
150,"Small Lot Residential - Single Family (4-6 du per acre)",0.25,30,50,"normal"
160,"Very Small Lot Residential - Single Family (>6 du per acre-includes mobile home",0.25,40,50,"normal"
170,"Medium Density Residential - Muli Family (5-10 du per acre)",0.25,45,50,"normal"
180,"High Density Residential - Multi Family (10-15 du per acre)",0.25,45,50,"normal"
190,"Very High Density Residential - Multi Family (> 15 du per acre)",0.25,45,50,"normal"
200,"General Commercial (Commercial where no detail available)",0.10,80,60,"normal"
210,"Specialty Commercial (<=50,000 sq. ft.)",0.10,80,65,"normal"
220,"Neighborhood Commercial (50,000 to 100,000 sq. ft.)",0.10,80,65,"normal"
230,"Community Commercial (100,000 to 500,000 sq. ft.)",0.10,80,75,"normal"
240,"Regional Commercial (500,000 to 1,000,000 sq. ft.)",0.10,80,65,"normal"
250,"Super-Regional Commercial (>= 1,000,000 sq. ft.)",0.10,80,70,"normal"
300,"General Industrial (Industrial where no detail available)",0.15,55,60,"normal"
310,"Warehouse/Distribution Centers",0.10,80,75,"normal"
320,"Industrial",0.15,55,60,"normal"
400,"Office General (Office where no detail available)",0.10,80,75,"normal"
410,"Office Low Rise (1-4 stories)",0.10,80,75,"normal"
420,"Office Mid Rise (5-12 stories)",0.10,80,75,"normal"
430,"Office High Rise (13 stories or more)",0.10,80,75,"normal"
510,"Tourist and Visitor Accommodations (Hotels, motels and resorts)",0.10,80,75,"normal"
5[illegible]"Educational (Public schools, private schools and universities)",0.29,45,80,"normal"
53[illegible]"Institutional (Includes hospitals and churches)",0.10,80,75,"normal"
540,"Cemeteries",0.10,5,90,"normal"
550,"Public Facilities (Includes community centers, power sub-stations, libraries, ci",0.10,80,75,"normal"
560,"Special Events (Includes stadiums, sports complexes and fairgrounds)",0.10,80,75,"normal"
570,"Other Employment - low (Proving grounds and land fills)",0.10,80,75,"normal"
580,"Other Employment - medium",0.10,80,75,"normal"
590,"Other Employment - high",0.10,80,75,"normal"
600,"General Transportation (Transportation where no detail available)",0.10,80,75,"normal"
610,"Transportation (Includes railroads, railyards, transit centers and freeways)",0.10,80,75,"normal"
620,"Airports (Includes public use airports)",0.15,55,60,"normal"
700,"General Open Space (Open space where no detail available)",0.10,5,90,"normal"
710,"Active Open Space (Includes parks)",0.25,0,90,"normal"
720,"Golf courses",0.10,5,90,"normal"
730,"Passive Open Space (Includes mountain preserves and washes)",0.25,0,90,"normal"
740,"Water",0.00,0,0,"wet"
750,"Agriculture",0.50,0,85,"normal"
810,"Business Park (Includes enclosed industrial, office or retail in a planned envir",0.10,80,75,"normal"
900,"Vacant (Existing land use database only)",0.35,0,25,"dry"

Soils Parameters

Supplied by MCFCD for use with Soils Coverage in WMS 7.0

6451,"Antho sandy loams",0.41,0.00,100
6452,"Antho gravelly sandy loams",0.41,0.00,100
6453,"Antho-Carrizo-Maripo complex",0.58,0.00,100
6454,"Antho-Carrizo-Maripo complex, low precipitation",0.58,0.00,100
6455,"Anthony sandy loam",0.43,0.00,100
6456,"Anthony-Arizo complex",0.62,0.00,100
6457,"Anthony-Arizo complex, low precipitation",0.62,0.00,100
6458,"Arizo cobbly sandy loam",0.96,0.00,100
6459,"Beeline-Cipriano complex, 3 to 45 percent slopes",0.27,0.00,100
6531,"Agualt and Ripley soils",0.00,0.00,100
6532,"Agualt and Ripley soils, saline-sodic",0.00,0.00,100
6533,"Ajo-Gunsight-Pompeii complex, 3 to 25 percent slopes",0.66,0.00,100
6535,"Carrizo-Dateland complex, 0 to 3 percent slopes",0.82,0.00,100
6536,"Carrizo-Momoli complex, 0 to 3 percent slopes",1.20,0.00,100
6537,"Cherioni very cobbly fine sandy loam, 3 to 10 percent slopes",0.40,0.00,100
6538,"Cherioni-Coolidge complex, 1 to 15 percent slopes",0.00,0.00,100
6539,"Cipriano-Hyder-Rock outcrop complex, 15 to 65 percent slopes",0.59,15.00,100
6581,"Brios gravelly loamy sand,3 to 5 percent slopes",0.00,0.00,100
6582,"Brios very fine sandy loam,0 to 2 percent slopes",0.00,0.00,100
6583,"Carrizo-Momoli complex, 1 to 3 percent slopes",0.00,0.00,100
6584,"Carrizo-Pinamt complex, 1 to 5 percent slopes",0.00,0.00,100
6585,"Carrizo very gravelly coarse sand, 0 to 1 percent slopes",0.00,0.00,100
6586,"Casa Grande clay loam, 0 to 1 percent slopes",0.00,0.00,100
6587,"Casa Grande complex, 0 to 5 percent slopes",0.00,0.00,100
6588,"Casa Grande fine sandy loam, 0 to 3 percent slopes",0.00,0.00,100
6589,"Cavelt-Carrizo-Gunsight complex, 1 to 10 percent slopes",0.00,0.00,100
7031,"Ajo-pinamt, deep, complex, 3 to 15 percent slopes",0.00,0.00,100
7032,"Anklam-cellar-rock outcrop complex, 15 to 55 percent slopes",0.00,0.00,100
7033,"Anklam very gravelly sandy loam, 3 to 15 percent slopes",0.00,0.00,100
20012,"Sandy Loam",0.40,0.00,100
20073,"Sandy Loam",0.40,0.00,100
64510,"Brios-Carrizo complex, 1 to 5 percent slopes",0.94,0.00,100
64511,"Brios-Carrizo complex, low precipitation, 1 to 5 percent slopes",0.94,0.00,100
64512,"Carefree cobbly clay loam, 1 to 8 percent slopes",0.01,0.00,100
64513,"Carefree-Beardsley complex",0.01,0.00,100
64514,"Carrizo very gravelly sand",1.04,0.00,100
64515,"Carrizo-Gunsight complex, 1 to 5 percent slopes",0.54,0.00,100
64516,"Cellar-Rock outcrop complex, 10 to 70 percent slopes",0.44,15.00,100
64517,"Cellar-Rock outcrop complex, low precipitation, 10 to 70 percent slopes",0.44,15.00,100
64518,"Cheriono-Rock outcrop complex, 5 to 60 percent slopes",0.33,15.00,100
64519,"Chuckawalla-Gunsight complex, 1 to 8 percent slopes",0.19,0.00,100
64520,"Chuckawalla-Gunsight complex, low precipitation, 1 to 8 percent slopes",0.19,0.00,100
64521,"Cipriano very gravelly loam",0.38,0.00,100
64522,"Contine clay loam",0.04,0.00,100
64523,"Contine clay",0.01,0.00,100
64524,"continental clay loam, 0 to 3 percent slopes",0.02,0.00,100
64525,"Continental clay, 0 to 3 percent slopes",0.02,0.00,100
64526,"Continental cobbly clay loam, 1 to 8 percent slopes",0.01,0.00,100
64527,"Continental-Mohave complex, 1 to 7 percent slopes",0.01,0.00,100
64528,"Continental-Ohaco complex",0.02,0.00,100
64529,"Denure-Momoli-Carrizo complex",0.34,0.00,100
64530,"Denure-Momoli-Carrizo complex, low precipitation",0.34,0.00,100
64531,"Dixaleta-Rock outcrop complex, 25 to 65 percent slopes",0.33,35.00,100
64532,"Dixaleta-Rock outcrop complex, low precipitation, 25 to 65 percent slopes",0.33,35.00,100

64533,"Eba very gravelly loam, 1 to 8 percent slopes",0.23,0.00,100
64534,"Eba very gravelly loam, 8 to 20 percent slopes",0.23,0.00,100
64535,"Eba very gravelly loam, low precipitation, 8 to 20 percent slopes",0.23,0.00,100
64536,"Eba-Continental complex, 1 to 8 percent slopes",0.07,0.00,100
64537,"Eba-Continental-Cave association, 3 to 20 percent slopes",0.13,0.00,100
64538,"Eba-Continental-Cave association, low precipitation, 3 to 20 percent",0.13,0.00,100
64539,"Eba-Nickel-Cave association, 3 to 25 percent slopes",0.29,0.00,100
64540,"Eba-Pinaleno complex, 3 to 20 percent slopes",0.17,0.00,100
64541,"Eba-Pinaleno complex, 20 to 40 percent slopes",0.17,0.00,100
64542,"Eba-Pinaleno complex, low precipitation, 3 to 20 percent slopes",0.17,0.00,100
64543,"Eba-Pinaleno complex, low precipitation, 20 to 40 percent slopes",0.17,0.00,100
64544,"Ebon very gravelly loam, 1 to 8 percent slopes",0.03,0.00,100
64545,"Ebon very gravelly loam, 8 to 20 percent slopes",0.03,0.00,100
64546,"Ebon-Contine complex, 1 to 8 percent",0.03,0.00,100
64547,"Ebon-Gunsight-Cipriano association, 3 to 25 percent slopes",0.11,0.00,100
64548,"Ebon-Pinamt complex, 3 to 20 percent slopes",0.06,0.00,100
64549,"Ebon-Pinamt complex, 20 to 40 percent slopes",0.06,0.00,100
64550,"Estrella loams",0.26,0.00,100
64551,"Gachado-Lomitas complex, 8 to 25 percent slopes",0.24,0.00,100
64552,"Gachado-Lomitas-Rock outcrop complex, 7 to 55 percent slopes",0.16,20.00,100
64553,"Gadsden clay",0.02,0.00,100
64554,"Gila fine sandy loams",0.29,0.00,100
64555,"Gilman loams",0.27,0.00,100
64556,"Gilman loams, low precipitation",0.27,0.00,100
64557,"Gilman clay loam",0.06,0.00,100
64558,"Gilman-Momoli-Denure complex",0.34,0.00,100
64559,"Gilman-Momoli-Denure complex, low precipitation",0.34,0.00,100
64560,"Glenbar loams",0.26,0.00,100
64561,"Gran-Wickenburg complex, 1 to 10 percent slopes",0.15,0.00,100
64562,"Gran-Wickenburg complex, low precipitation, 1 to 10 percent slopes",0.15,0.00,100
64563,"Gran-Wickenburg-Rock outcrop complex, 1 to 7 percent slopes",0.14,25.00,100
64564,"Gran-Wickenburg-Rock outcrop complex, low precipitation, 10 to 65 percent slopes",0.14,25.00,100
64565,"Greyeagle-Continental-Nickel association, 1 to 40 percent slopes",0.19,0.00,100
64566,"Greyeagle-Suncity Variant complex, 1 to 7 percent slopes",0.23,0.00,100
64567,"Guest clay",0.01,0.00,100
64568,"Gunsight-Cipriano complex, 1 to 7 percent slopes",0.63,0.00,100
64569,"Gunsight-Cipriano complex, low precipitation, 1 to 7 percent slopes",0.63,0.00,100
64570,"Gunsight-Rillito complex, 1 to 25 percent slopes",0.36,0.00,100
64571,"Gunsight-Rillito complex, low precipitation, 1 to 40 percent slopes",0.36,0.00,100
64572,"Lehmans-Rock outcrop complex, 8 to 65 percent slopes",0.09,30.00,100
64573,"Lehmans-Rock outcrop complex, low precipitation, 8 to 65 percent slopes",0.09,30.00,100
64574,"Luke-Cipriano association, 1 to 15 percent slopes",0.08,0.00,100
64575,"Mohall loam",0.23,0.00,100
64576,"Mohall loam, calcareous solum",0.23,0.00,100
64577,"Mohall clay loam",0.05,0.00,100
64578,"Mohall clay loam, calcareous solum",0.05,0.00,100
64579,"Mohall clay",0.02,0.00,100
64580,"Mohall-Tremant complex, 1 to 8 percent slopes",0.08,0.00,100
64581,"Mohall-Tremant complex, low precipitation, 1 to 8 percent slopes",0.08,0.00,100
64582,"Mohave sandy loam",0.04,0.00,100
64583,"Mohave loam",0.04,0.00,100
64584,"Mohave loam, calcareous solum",0.05,0.00,100
64585,"Mohave clay loam",0.04,0.00,100
64586,"Mohave clay loam, calcareous solum",0.05,0.00,100
64587,"Mohave complex",0.04,0.00,100
64588,"Mohave-Guest complex",0.02,0.00,100
64589,"Mohave-Tres Hermanos complex, 1 to 8 percent slopes",0.06,0.00,100
64590,"Momoli gravelly sandy loam, 1 to 5 percent slopes",0.39,0.00,100
64591,"Momoli-Carrizo complex",0.93,0.00,100

64592,"Momoli-Carrizo complex, low precipitation",0.93,0.00,100
64593,"Nickel-Cave complex, 8 to 30 percent slopes",0.33,0.00,100
64594,"Nickel-Cave complex, low precipitation, 8 to 30 percent slopes",0.33,0.00,100
64595,"Ohaco gravelly loam",0.04,0.00,100
64596,"Pinaleno-Tres Hermanos complex, 1 to 10 percent slopes",0.07,0.00,100
64597,"Pinaleno-Tres Hermanos complex, low precipitation, 1 to 10 percent slopes",0.07,0.00,100
64598,"Pinamt-Tremant complex, 1 to 10 percent slopes",0.37,0.00,100
64599,"Pinamt-Tremant complex, low precipitation, 1 to 10 percent slopes",0.37,0.00,100
65164,"Lakes, ponds, reservoirs - perennial",0.00,0.00,100
65310,"Cipriano-Momoli complex, 1 to 7 percent slopes",0.50,0.00,100
65311,"Coolidge complex, 0 to 3 percent slopes",0.00,0.00,100
65312,"Cuerda-Why-Lagunita complex",0.35,0.00,100
65313,"Dateland very fine sandy loam",0.00,0.00,100
65314,"Dateland-Cuerda complex, 0 to 3 percent slopes",0.25,0.00,100
65315,"Dateland-Denure fine sandy loams, saline-sodic, 0 to 3 percent slopes",0.28,0.00,100
65316,"Denure sandy loam",0.00,0.00,100
65317,"Denure gravelly fine sandy loam, 1 to 3 percent slopes",0.56,0.00,100
65318,"Denure-Carrizo, bench, gravelly fine sandy loams",0.00,0.00,100
65319,"Denure-Cavelt complex, 0 to 3 percent slopes",0.00,0.00,100
65320,"Denure-Coolidge complex, 1 to 3 percent slopes",0.50,0.00,100
65321,"Denure-Rillito-Why complex, 1 to 5 percent slopes",0.40,0.00,100
65322,"Denure-Why complex, 1 to 5 percent slopes",0.00,0.00,100
65324,"Gadsden clay loam, 0 to 3 percent slopes",0.00,0.00,100
65325,"Gadsden and Kofa silty clay loams, saline-sodic",0.00,0.00,100
65327,"Gilman very fine sandy loam",0.00,0.00,100
65328,"Gilman very fine sandy loam, saline-sodic",0.00,0.00,100
65329,"Glenbar silty clay loam",0.00,0.00,100
65330,"Glenbar silty clay loam, saline-sodic",0.00,0.00,100
65331,"Growler-Momoli complex, 1 to 3 percent slopes",0.84,0.00,100
65332,"Growler-Wellton complex, 1 to 3 percent slopes",0.49,0.00,100
65333,"Gunsight-Ajolito extremely gravelly sandy loams, 1 to 15 percent slopes",1.20,0.00,100
65334,"Gunsight-Chuckawalla complex, 1 to 15 percent slopes",0.84,0.00,100
65335,"Gunsight-Cipriano complex, 1 to 15 percent slopes",0.91,0.00,100
65336,"Gunsight-Pinamt complex, 1 to 15 percent slopes",0.84,0.00,100
65337,"Gunsight-Rillito-Carrizo complex, 1 to 15 percent slopes",0.80,0.00,100
65338,"Harqua fine sandy loam, 0 to 3 percent slopes",0.00,0.00,100
65339,"Harqua-Cavelt complex, 1 to 10 percent slopes",0.00,0.00,100
65340,"Hyder-Gachado-Gunsight extremely gravelly sandy loams, 1 to 25 percent slopes",0.40,15.00,100
65341,"Indio silt loam",0.00,0.00,100
65342,"Indio silt loam, saline-sodic",0.00,0.00,100
65343,"Lagunita-Vint complex",0.00,0.00,100
65344,"Mohall fine sandy loam",0.00,0.00,100
65345,"Mohall loam",0.28,0.00,100
65346,"Mohall loam, occasionally flooded",0.00,0.00,100
65347,"Mohall clay loam",0.00,0.00,100
65348,"Mohall complex, 0 to 3 percent slopes",0.00,0.00,100
65349,"Momoli-Carrizo extremely gravelly sandy loams, 1 to 10 percent slopes",1.20,0.00,100
65350,"Momoli-Carrizo, bench, very gravelly sandy loams, 1 to 3 percent slopes",1.20,0.00,100
65351,"Momoli-Comobabi association, 5 to 15 percent slopes",0.48,0.00,100
65352,"Pits",0.00,0.00,100
65353,"Quilotosa-Momoli-Carrizo complex, 1 to 15 percent slopes",1.20,15.00,100
65354,"Quilotosa-Rock outcrop complex, 15 to 55 percent slopes",0.97,26.00,100
65355,"Riverwash",0.00,0.00,100
65356,"Rock outcrop-Hyder complex. 25 to 65 percent slopes",0.00,0.00,100
65357,"Rositas-Denure loamy fine sands, 1 to 10 percent slopes",0.00,0.00,100
65358,"Schenco-Laposa-Rock outcrop complex, 10 to 55 percent slopes",0.63,19.00,100
65359,"Tremant gravelly fine sandy loam",0.00,0.00,100
65360,"Tucson loam",0.25,0.00,100
65361,"Vaiva-Quilotosa extremely gravelly sandy loams, 3 to 25 percent slopes",0.00,0.00,100

65362,"Vaiva-Quilotosa extremely stony sandy loams, 25 to 55 percent slopes",0.00,0.00,100
65363,"Vint very fine sandy loam",0.00,0.00,100
65364,"Lakes, ponds, reservoirs - perennial",0.00,0.00,100
65365,"Wellton complex",0.00,0.00,100
65366,"Why gravelly fine sandy loam",0.00,0.00,100
65367,"Why-Carrizo complex, 0 to 3 percent slopes",0.44,0.00,100
65564,"Lakes, ponds, reservoirs - perennial",0.00,0.00,100
65810,"Chuckwalla-Gunsight complex, 1 to 5 percent slopes",0.00,0.00,100
65811,"Cristobal-Gunsight complex, 3 to 15 percent slopes",0.00,0.00,100
65812,"Dateland-Cuerda complex, saline-sodic, 0 to 3 percent slopes",0.00,0.00,100
65813,"Denure-Pahaka complex, 1 to 3 percent slopes",0.00,0.00,100
65814,"Denure-Pahaka complex, 3 to 5 percent slopes",0.00,0.00,100
65815,"Gadsden, Glenbar and Vint soils, saline-sodic, 0 to 2 percent slopes",0.00,0.00,100
65816,"Gadsden silty clay loam, saline-sodic, 0 to 2 percent slopes",0.00,0.00,100
65817,"Glenbar silt loam, saline-sodic, 0 to 2 percent slopes",0.00,0.00,100
65818,"Indio silt loam, saline-sodic, 0 to 2 percent slopes",0.00,0.00,100
65819,"Indio-Vint complex, saline-sodic, 0 to 3 percent slopes",0.00,0.00,100
65820,"Kamato complex, 0 to 5 percent slopes",0.00,0.00,100
65821,"Kamato loam, 0 to 2 percent slopes",0.00,0.00,100
65822,"Lagunita silt loam, 0 to 2 percent slopes",0.00,0.00,100
65823,"Laveen fine sandy loam, saline-sodic, 0 to 2 percent slopes",0.00,0.00,100
65824,"Momoli cobbly sandy loam, 5 to 15 percent slopes",0.00,0.00,100
65825,"Pompeii-Lomitas-Rock outcrop complex, 15 to 65 percent slopes",0.00,0.00,100
65826,"Quilotosa-Momoli-Vaiva complex, 1 to 15 percent slopes",0.00,0.00,100
65827,"Quilotosa-Rock outcrop-Vaiva complex, 20 to 65 percent slopes",0.00,0.00,100
65828,"Redun-Shontik complex, 1 to 3 percent slopes",0.00,0.00,100
65829,"Rillito-Gunsight complex, 3 to 15 percent slopes",0.00,0.00,100
65830,"Rositas-Casa Grande-Slickspots complex, 1 to 15 percent slopes",0.00,0.00,100
65831,"Rositas loamy fine sand, sodic, 0 to 3 percent slopes",0.00,0.00,100
65832,"Shontik-Redun complex, 0 to 3 percent slopes",0.00,0.00,100
65833,"Talai silt loam, 0 to 2 percent slopes",0.00,0.00,100
65834,"Trix loam, saline-sodic, 0 to 1 percent slopes",0.00,0.00,100
65835,"Vint-Yahana complex, saline-sodic, 0 to 10 percent slopes",0.00,0.00,100
65836,"Why-Brios complex, 0 to 2 percent slopes",0.00,0.00,100
65837,"Yahana-Indio complex, saline-sodic, 0 to 3 percent slopes",0.00,0.00,100
65838,"Yahana silty clay loam, 0 to 2 percent slopes",0.00,0.00,100
70313,"Chutum loam, 1 to 3 percent slopes",0.00,0.00,100
70315,"Dateland-denure association, 1 to 3 percent slopes",0.00,0.00,100
70316,"Delnorte-stagecoach complex, 1 to 20 percent slopes",0.00,0.00,100
70318,"Delthorny-garzona-rock outcrop complex, 15 to 60 percent slopes",0.00,0.00,100
70319,"Denure-momoli complex, 1 to 5 percent slopes",0.00,0.00,100
70323,"Gachado-lomitas-rock outcrop complex, 15 to 45 percent slopes",0.00,0.00,100
70324,"Gadsden silty clay loam, 0 to 1 percent slopes",0.00,0.00,100
70325,"Gilman very fine sandy loam, 0 to 1 percent slopes",0.00,0.00,100
70327,"Glenbar loam, 0 to 1 percent slopes",0.00,0.00,100
70328,"Glendale clay loam, 0 to 2 percent slopes, flooded",0.00,0.00,100
70329,"Glendale silt loam, 1 to 3 percent slopes",0.00,0.00,100
70330,"Glendale-pajarito complex, 1 to 3 percent slopes",0.00,0.00,100
70331,"Grabe-vado complex, 1 to 5 percent slopes",0.00,0.00,100
70332,"Granolite-rock outcrop complex, 15 to 65 percent slopes",0.00,0.00,100
70334,"Hantz clay loam, 0 to 1 percent slopes",0.00,0.00,100
70336,"Hickiwan-gunsight-momoli complex, 3 to 15 percent slopes",0.00,0.00,100
70340,"Lajitas-bosa-rock outcrop complex, 15 to 50 percent slopes",0.00,0.00,100
70343,"Mohall-pahaka complex, 1 to 3 percent slopes",0.00,0.00,100
70344,"Mohall-trix complex, 0 to 1 percent slopes",0.00,0.00,100
70345,"Nahda-stagecoach complex, 1 to 15 percent slopes",0.00,0.00,100
70347,"Pajarito-sahuarita complex, 1 to 3 percent slopes",0.00,0.00,100
70348,"Pantano-granolite complex, 5 to 25 percent slopes",0.00,0.00,100
70349,"Pinamt-momoli complex, 1 to 10 percent slopes",0.00,0.00,100
70355,"Sasco loam, 0 to 1 percent slopes",0.00,0.00,100
70360,"Vado-agustin complex, 1 to 8 percent slopes",0.00,0.00,100

70362,"Wintersburg loam, 0 to 1 percent slopes",0.00,0.00,100
70363,"Water",0.00,0.00,100
100103,"Sandy Clay Loam",0.12,0.00,100
100121,"Sandy Clay Loam",0.12,0.00,100
100126,"Sandy Loam",0.40,15.00,100
100301,"Sandy Loam",0.40,0.00,100
100303,"Sandy Loam",0.40,15.00,100
200239,"Sandy Loam",0.40,30.00,100
200292,"Sandy Loam",0.40,30.00,100
200300,"Sandy Clay Loam",0.06,0.00,100
200301,"Sandy Clay Loam",0.06,0.00,100
200352,"Sandy Loam",0.40,10.00,100
200381,"Sandy Loam",0.40,0.00,100
200382,"Sandy Loam",0.40,15.00,100
200390,"Sandy Clay Loam",0.06,0.00,100
200391,"Sandy Clay Loam",0.06,0.00,100
200400,"Sandy Clay Loam",0.06,0.00,100
200401,"Sandy Clay Loam",0.06,0.00,100
200402,"Sandy Loam",0.40,10.00,100
200415,"Sandy Loam",0.40,0.00,100
200416,"Sandy Clay Loam",0.06,0.00,100
200417,"Loam",0.25,20.00,100
200418,"Sandy Loam",0.40,0.00,100
200451,"Loam",0.25,0.00,100
200452,"Loam",0.25,20.00,100
300337,"Saucedo volcanics - includes rhyolite, latite, and andesite",0.00,0.00,100
645100,"Quilotosa-Vaiva-Rock outcrop complex, 20 to 65 percent slopes",0.40,20.00,100
645101,"Rillito loam, 0 to 3 percent slopes",0.28,0.00,100
645102,"Rillito gravelly loam, 1 to 8 percent slopes",0.40,0.00,100
645103,"Rock outcrop-Gachado complex, 5 to 55 percent slopes",0.10,65.00,100
645104,"Rock outcrop-Lehmans complex, 15 to 65 percent slopes",0.14,60.00,100
645105,"Rock outcrop-Lehmans complex, low precipitation, 15 to 65 percent slopes",0.14,60.00,100
645106,"Sal-Cipriano complex, 1 to 10 percent slopes",0.18,0.00,100
645107,"Sal-Cipriano complex, low precipitation, 1 to 10 percent slopes",0.18,0.00,100
645108,"Schenco-Rock outcrop complex, 3 to 25 percent slopes",0.31,30.00,100
645109,"Schenco-Rock outcrop complex, 25 to 60 percent slopes",0.35,35.00,100
645110,"Suncity-Cipriano complex, 1 to 7 percent slopes",0.13,0.00,100
645111,"Torriorthents, 15 to 40 percent slopes",0.40,0.00,100
645112,"Tremant gravelly sandy loams",0.39,0.00,100
645113,"Tremant gravelly loams",0.39,0.00,100
645114,"Tremant gravelly loams, low precipitation",0.39,0.00,100
645115,"Tremant-Antho complex, 1 to 5 percent slopes",0.39,0.00,100
645116,"Tremant-Gunsight-Rillito complex, 1 to 5 percent slopes",0.23,0.00,100
645117,"Tremant-Gunsight-Rillito complex, low precipitation, 1 to 5 percent slopes",0.23,0.00,100
645118,"Tremant-Rillito complex",0.42,0.00,100
645119,"Tremant-Suncity complex, 1 to 8 percent slopes",0.14,0.00,100
645120,"Tres Hermanos gravelly sandy loams",0.06,0.00,100
645121,"Tres Hermanos-Anthony complex, 1 to 5 percent slopes",0.12,0.00,100
645122,"Vado gravelly sandy loam, 1 to 5 percent slopes",0.33,0.00,100
645123,"Vaiva very gravelly loam, 1 to 20 percent slopes",0.37,0.00,100
645124,"Valencia sandy loams",0.39,0.00,100
645125,"Vint loamy fine sand",0.43,0.00,100
645999,"Blank/Unknown/Uncertain",0.00,0.00,100
651999,"Blank/Unknown/Uncertain",0.00,0.00,100
655999,"Blank/Unknown/Uncertain",0.00,0.00,100
999999,"Blank/Unknown/Uncertain",0.00,0.00,100
6512021,"Agualt loam",0.26,0.00,100
6512025,"Antho sandy loam, saline-alkali",0.39,0.00,100
6512029,"Antho-Brios sandy loams",0.39,0.00,100

6512042,"Antho association",0.40,0.00,100
6512044,"Antho-Valencia association",0.39,0.00,100
6512047,"Avonda clay loam",0.05,0.00,100
6512049,"Avondale clay loam",0.04,0.00,100
6512051,"Avondale clay loam, saline-alkali",0.04,0.00,100
6512228,"Beardsley loam",0.24,0.00,100
6512255,"Brios loamy sand",1.05,0.00,100
6512257,"Brios sandy loam",0.39,0.00,100
6512259,"Brios loam",0.25,0.00,100
6512423,"Carrizo gravelly sandy loam",0.40,0.00,100
6512430,"Carrizo and Brios soils",0.50,0.00,100
6512433,"Casa Grande Sandy loam",0.24,0.00,100
6512435,"Casa Grande loam",0.24,0.00,100
6512441,"Casa Grande complex",0.30,0.00,100
6512445,"Casa Grande-Leveen complex, alkali",0.26,0.00,100
6512447,"Cashion clay, saline-alkali",0.01,0.00,100
6512448,"Cheriono-Rock outcrop complex",0.29,20.00,100
6512451,"Coolidge sandy loam",0.40,0.00,100
6512457,"Coolidge-Tremant complex",0.19,0.00,100
6512462,"Coolidge-Laveen association",0.39,0.00,100
6512647,"Dune land",1.20,0.00,100
6512857,"Estrella loam",0.25,0.00,100
6512859,"Estrella loam, saline-alkali",0.25,0.00,100
6513220,"Gachado-Rock outcrop complex",0.10,40.00,100
6513223,"Gadsden clay loam",0.04,0.00,100
6513225,"Gadsden clay",0.01,0.00,100
6513227,"Gadsden clay, saline-alkali",0.01,0.00,100
6513229,"Gilman fine sandy loam",0.26,0.00,100
6513231,"Gilman fine sandy loam, saline-alkali",0.24,0.00,100
6513235,"Gilman loam, saline-alkali",0.24,0.00,100
6513242,"Gilman complex, saline-alkali",0.25,0.00,100
6513244,"Gilman-Antho association",0.29,0.00,100
6513246,"Gilman-Laveen association",0.25,0.00,100
6513251,"Gilman loam, clayey subsoil variant, moderately saline",0.24,0.00,100
6513255,"Glenbar loam",0.23,0.00,100
6513257,"Glenbar loam, saline-alkali",0.23,0.00,100
6513259,"Glenbar clay loam",0.04,0.00,100
6513261,"Glenbar clay loam, saline-alkali",0.04,0.00,100
6513263,"Glenbar clay",0.01,0.00,100
6513444,"Harqua-Laveen complex",0.15,0.00,100
6514221,"La Palma very fine sandy loam",0.26,0.00,100
6514223,"Laveen sandy loam",0.40,0.00,100
6514227,"Laveen loam, saline-alkali",0.25,0.00,100
6514229,"Laveen clay loam",0.04,0.00,100
6514231,"Laveen-Antho complex, saline-alkali",0.33,0.00,100
6514421,"Maripo sandy loam",0.40,0.00,100
6514449,"Mohall sandy loam",0.39,0.00,100
6514451,"Mohall loam",0.25,0.00,100
6514455,"Mohall clay loam",0.05,0.00,100
6514457,"Mohall clay",0.01,0.00,100
6514462,"Mohall-Laveen association",0.15,0.00,100
6515021,"Perryville sandy loam",0.40,0.00,100
6515023,"Perryville loam, saline-alkali",0.38,0.00,100
6515058,"Pinal gravelly loam",0.40,0.00,100
6515456," Rock outcrop-Cherioni complex",0.40,65.00,100
6515821,"Toltec loam",0.25,0.00,100
6515822,"Torrifluvents",0.40,0.00,100
6515825,"Torriorthents",0.40,0.00,100
6515826,"Torripsamments and Torrifluvents, frequently flooded",1.20,0.00,100
6515829,"Tremant loam",0.25,0.00,100
6515833,"Tremant clay loam",0.04,0.00,100

6515835,"Tremant gravelly clay loam",0.04,0.00,100
6515859,"Trix clay loam",0.04,0.00,100
6515861,"Tucson loam",0.25,0.00,100
6515865,"Tucson clay loam",0.05,0.00,100
6516221,"Valencia sandy loam",0.39,0.00,100
6516223,"Valencia sandy loam, saline-alkali",0.39,0.00,100
6516225,"Valencia gravelly sandy loam",0.39,0.00,100
6516229,"Vecont loam",0.25,0.00,100
6516231,"Vecont clay",0.01,0.00,100
6516233,"Vint loamy fine sand",0.91,0.00,100
6516235,"Vint fine sandy loam",0.27,0.00,100
6516241,"Vint loam",0.26,0.00,100
6516247,"Vint clay loam",0.04,0.00,100
6516255,"Vint-Carrizo complex",0.63,0.00,100
6516433,"Wintersburg complex",0.03,0.00,100
6552031,"Agualt fine sandy loam",0.25,0.00,100
6552033,"Agualt loam",0.25,0.00,100
6552045,"Alluvial land",1.20,0.00,100
6552063,"Avondale clay loam",0.04,0.00,100
6552421,"Carrizo gravelly loamy sand",1.20,0.00,100
6552423,"Carrizo fine sandy loam",0.25,0.00,100
6552425,"Cashion clay",0.01,0.00,100
6552449,"Contine clay loam",0.04,0.00,100
6552857,"Estrella loam",0.25,0.00,100
6553231,"Gilman fine sandy loam",0.25,0.00,100
6553245,"Gilman loam",0.25,0.00,100
6553247,"Glenbar clay loam",0.04,0.00,100
6553255,"Gravelly alluvial land",1.20,0.00,100
6554449,"Mohall sandy loam",0.40,0.00,100
6554463,"Mohall loam",0.25,0.00,100
6555045,"Pimer clay loam",0.04,0.00,100
6555049,"Pinal loam, moderately deep variant",0.25,0.00,100
6555449,"Rock land",0.25,65.00,100
6555461,"Rough broken land",0.40,20.00,100
6555867,"Trix clay loam",0.04,0.00,100
6556221,"Valencia sandy loam",0.40,0.00,100
6556229,"Vecont clay",0.01,0.00,100
6556231,"Vint loamy fine sand",1.20,0.00,100
65124202,"Calciorthids and Torriorthents, eroded",0.38,0.00,100
65132493,"Gilman,Antho and Glenbar soils, severely eroded",0.19,0.00,100
651202320,"Anthosandy loam, 0 to 1 percent slopes",0.38,0.00,100
651202322,"Antho sandy loam, 1 to 3 percent slopes",0.39,0.00,100
651202720,"Antho gravelly sandy loam, 0 to 1 percent slopes",0.40,0.00,100
651202722,"Antho gravelly sandy loam, 1 to 3 percent slopes",0.40,0.00,100
651203120,"Antho-Carrizo complex, 0 to 1 percent slopes",0.38,0.00,100
651203122,"Antho-Carrizo complex, 1 to 3 percent slopes",0.40,0.00,100
651203222,"Antho-Carrizo complex, 0 to 3 percent slopes",0.40,0.00,100
651203424,"Antho-Tremant complex, 1 to 5 percent slopes",0.38,0.00,100
651204122,"Antho-Tremant-Mohall complex, 1 to 5 percent slopes",0.27,0.00,100
651225036,"Borrow pit",0.00,0.00,100
651242926,"Carrizo-Ebon complex, 3 to 12 percent slopes",0.19,0.00,100
651245522,"Coolidge gravelly sandy loam, 1 to 3 percent slopes",0.40,0.00,100
651282326,"Ebon gravelly loam, 0 to 8 percent slopes",0.10,0.00,100
651285026,"Ebon-Pinamt complex, 0 to 10 percent slopes",0.12,0.00,100
651323320,"Gilman loan, 0 to 1 percent slopes",0.25,0.00,100
651323322,"Gilman loam, 1 to 3 percent slopes",0.26,0.00,100
651325036,"Gravel pit",0.00,0.00,100
651326426,"Gunsight-Pinal complex, 1 to 10 percent slopes",0.35,0.00,100
651326720,"Gunsight-Rillito complex, 0 to 1 percent slopes",0.23,0.00,100
651326722,"Gunsight-Rillito complex, 1 to 3 percent slopes",0.24,0.00,100
651326826,"Gunsight-Rillito complex, 0 to 10 percent slopes",0.26,0.00,100

651342022,"Harqua complex, 0 to 3 percent slopes",0.07,0.00,100
651342024,"Harqua complex, 3 to 8 percent slopes",0.05,0.00,100
651344224,"Harqua-Gunsight complex, 0 to 5 percent slopes",0.14,0.00,100
651345522,"Harqua-Rillito complex, 1 to 3 percent slopes",0.12,0.00,100
651422520,"Laveen loam, 0 to 1 percent slopes",0.25,0.00,100
651422522,"Laveen loam, 1 to 3 percent slopes",0.25,0.00,100
651422862,"Man-made levee",0.00,0.00,100
651441064,"Waste stabilization pond",0.00,0.00,100
651445822,"Mohall-Tremant complex, 0 to 3 percent slopes",0.15,0.00,100
651502920,"Perryville gravelly loam, 0 to 1 percent slopes",0.37,0.00,100
651502922,"Perryville gravelly loam, 1 to 3 percent slopes",0.38,0.00,100
651505422,"Perryville-Rillito complex, 0 to 3 percent slopes",0.28,0.00,100
651505720,"Pinal loam, 0 to 1 percent slopes",0.25,0.00,100
651505722,"Pinal loam, 1 to 3 percent slopes",0.26,0.00,100
651506322,"Pinal-La Palma loams, 1 to 3 percent slopes",0.25,0.00,100
651506422,"Pinal-Suncity complex, 0 to 3 percent slopes",0.38,0.00,100
651506826,"Pinamt-Tremant complex, 1 to 10 percent slopes",0.20,0.00,100
651542120,"Rillito sandy loam, 0 to 1 percent slopes",0.39,0.00,100
651542122,"Rillito sandy loam, 1 to 3 percent slopes",0.39,0.00,100
651542320,"Rillito loam, 0 to 1 percent slopes",0.26,0.00,100
651542322,"Rillito loam, 1 to 3 percent slopes",0.25,0.00,100
651543522,"Rillito-Harqua complex, 1 to 3 percent slopes",0.23,0.00,100
651545128,"Rillito-Perryville complex, 5 to 20 percent slopes",0.29,0.00,100
651583120,"Tremant gravelly loam, 0 to 1 percent slopes",0.37,0.00,100
651583122,"Tremant gravelly loam 1 to 3 percent slopes",0.36,0.00,100
651585022,"Tremant complex, 0 to 3 percent slopes",0.12,0.00,100
651585520,"Tremant-Rillito complex, 0 to 1 percent slopes",0.11,0.00,100
651585522,"Tremant-Rillito complex, 1 to 3 percent slopes",0.13,0.00,100
651585624,"Tremant-Rillito complex, 0 to 5 percent slopes",0.14,0.00,100
653422862,"Man-made levee",0.00,0.00,100
655204720,"Antho sandy loam, 0 to 1 percent slopes",0.40,0.00,100
655204722,"Antho sandy loam, 1 to 3 percent slopes",0.40,0.00,100
655204922,"Antho gravelly sandy loam, 1 to 3 percent slopes",0.40,0.00,100
655242924,"Cavelt gravelly loam, 1 to 5 percent slopes",0.40,0.00,100
655325462,"Gravel pit",0.00,0.00,100
655422120,"Laveen loam, 0 to 1 percent slopes",0.25,0.00,100
655422122,"Laveen loam, 1 to 3 percent slopes",0.25,0.00,100
655422920,"Laveen clay loam, 0 to 1 percent slopes",0.04,0.00,100
655504720,"Pinal gravelly loam, 0 to 1 percent slopes",0.40,0.00,100
655504724,"Pinal gravelly loam, 1 to 3 percent slopes",0.40,0.00,100
655506320,"Pinamt very gravelly loam, 0 to 1 percent slopes",0.40,0.00,100
655506324,"Pinamt very gravelly loam, 3 to 5 percent slopes",0.40,0.00,100
655543720," Rillito gravelly loam, 0 to 1 percent slopes",0.40,0.00,100
655543722,"Rillito gravelly loam, 1 to 3 percent slopes",0.40,0.00,100
655585522,"Tremant gravelly loam, 1 to 3 percent slopes",0.10,0.00,100

Basin A
Soil Type Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Soil Type
Overlay Coverage Attribute -> SCS Soil

Overlay Areas and Percentages

Basin A1 - SCS Soil 645110 - 0.05 sq mi. - 96.62%
Basin A1 - SCS Soil 64512 - 0.00 sq mi. - 3.38%
Basin A2 - SCS Soil 645110 - 0.12 sq mi. - 88.34%
Basin A2 - SCS Soil 64513 - 0.02 sq mi. - 11.66%
Basin A3 - SCS Soil 645110 - 0.14 sq mi. - 67.52%
Basin A3 - SCS Soil 64513 - 0.07 sq mi. - 32.48%
Basin A4 - SCS Soil 645110 - 0.26 sq mi. - 100.00%
Basin A5 - SCS Soil 645110 - 0.03 sq mi. - 56.24%
Basin A5 - SCS Soil 64513 - 0.02 sq mi. - 43.76%
Basin A6 - SCS Soil 64513 - 0.02 sq mi. - 100.00%
Basin A7 - SCS Soil 645110 - 0.04 sq mi. - 76.81%
Basin A7 - SCS Soil 64513 - 0.01 sq mi. - 23.19%
Basin A8 - SCS Soil 645110 - 0.02 sq mi. - 42.13%
Basin A8 - SCS Soil 64513 - 0.03 sq mi. - 57.87%
Basin A9 - SCS Soil 64513 - 0.04 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  0.86 sq mi. - 100.00%
    SCS Soil 645110 - 0.65 sq mi. - 75.95%
    SCS Soil 64512 - 0.00 sq mi. - 0.20%
    SCS Soil 64513 - 0.21 sq mi. - 23.86%
Input Polygons Overlay Areas:
  Basin A1 - 0.05 sq mi. - 100.00%
  Basin A2 - 0.13 sq mi. - 100.00%
  Basin A3 - 0.20 sq mi. - 100.00%
  Basin A4 - 0.26 sq mi. - 100.00%
  Basin A5 - 0.05 sq mi. - 100.00%
  Basin A6 - 0.02 sq mi. - 100.00%
  Basin A7 - 0.05 sq mi. - 100.00%
  Basin A8 - 0.05 sq mi. - 100.00%
  Basin A9 - 0.04 sq mi. - 100.00%

Basin A
Land Use Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Land Use
Overlay Coverage Attribute -> Land Use

Overlay Areas and Percentages

Basin A1 - Land Use 740 - 0.00 sq mi. - 1.17%
Basin A1 - Land Use 900 - 0.05 sq mi. - 98.83%
Basin A2 - Land Use 740 - 0.00 sq mi. - 0.05%
Basin A2 - Land Use 900 - 0.13 sq mi. - 99.95%
Basin A3 - Land Use 220 - 0.01 sq mi. - 3.63%
Basin A3 - Land Use 550 - 0.00 sq mi. - 0.52%
Basin A3 - Land Use 900 - 0.19 sq mi. - 95.84%
Basin A4 - Land Use 620 - 0.05 sq mi. - 19.11%
Basin A4 - Land Use 900 - 0.21 sq mi. - 80.89%
Basin A5 - Land Use 620 - 0.03 sq mi. - 55.47%
Basin A5 - Land Use 900 - 0.02 sq mi. - 44.53%
Basin A6 - Land Use 620 - 0.00 sq mi. - 9.80%
Basin A6 - Land Use 900 - 0.02 sq mi. - 90.20%
Basin A7 - Land Use 620 - 0.00 sq mi. - 6.17%
Basin A7 - Land Use 900 - 0.05 sq mi. - 93.83%
Basin A8 - Land Use 620 - 0.00 sq mi. - 1.49%
Basin A8 - Land Use 900 - 0.05 sq mi. - 98.51%
Basin A9 - Land Use 900 - 0.04 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  0.86 sq mi. - 100.00%
    Land Use 220 - 0.01 sq mi. - 0.85%
    Land Use 550 - 0.00 sq mi. - 0.12%
    Land Use 620 - 0.08 sq mi. - 9.79%
    Land Use 740 - 0.00 sq mi. - 0.08%
    Land Use 900 - 0.77 sq mi. - 89.17%
Input Polygons Overlay Areas:
  Basin A1 - 0.05 sq mi. - 100.00%
  Basin A2 - 0.13 sq mi. - 100.00%
  Basin A3 - 0.20 sq mi. - 100.00%
  Basin A4 - 0.26 sq mi. - 100.00%
  Basin A5 - 0.05 sq mi. - 100.00%
  Basin A6 - 0.02 sq mi. - 100.00%
  Basin A7 - 0.05 sq mi. - 100.00%
  Basin A8 - 0.05 sq mi. - 100.00%
  Basin A9 - 0.04 sq mi. - 100.00%

Basin B
Soil Type Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Soil Type
Overlay Coverage Attribute -> SCS Soil

Overlay Areas and Percentages

Basin B1 - SCS Soil 645110 - 0.16 sq mi. - 86.79%
Basin B1 - SCS Soil 64512 - 0.01 sq mi. - 2.69%
Basin B1 - SCS Soil 64513 - 0.02 sq mi. - 10.51%
Basin B2 - SCS Soil 645110 - 0.08 sq mi. - 98.47%
Basin B2 - SCS Soil 64513 - 0.00 sq mi. - 1.53%
Basin B3 - SCS Soil 645110 - 0.02 sq mi. - 36.36%
Basin B3 - SCS Soil 64513 - 0.03 sq mi. - 63.64%
Basin B4 - SCS Soil 645110 - 0.02 sq mi. - 44.91%
Basin B4 - SCS Soil 64513 - 0.02 sq mi. - 55.09%
Basin B5 - SCS Soil 645110 - 0.03 sq mi. - 18.47%
Basin B5 - SCS Soil 64513 - 0.14 sq mi. - 81.53%
Basin B6 - SCS Soil 64513 - 0.02 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  0.55 sq mi. - 100.00%
    SCS Soil 645110 - 0.31 sq mi. - 56.66%
    SCS Soil 64512 - 0.01 sq mi. - 0.92%
    SCS Soil 64513 - 0.23 sq mi. - 42.42%
Input Polygons Overlay Areas:
  Basin B1 - 0.19 sq mi. - 100.00%
  Basin B2 - 0.09 sq mi. - 100.00%
  Basin B3 - 0.05 sq mi. - 100.00%
  Basin B4 - 0.04 sq mi. - 100.00%
  Basin B5 - 0.17 sq mi. - 100.00%
  Basin B6 - 0.02 sq mi. - 100.00%

Basin B
Land Use Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Land Use
Overlay Coverage Attribute -> Land Use

Overlay Areas and Percentages

Basin B1 - Land Use 710 - 0.19 sq mi. - 100.00%
Basin B2 - Land Use 220 - 0.01 sq mi. - 10.71%
Basin B2 - Land Use 710 - 0.08 sq mi. - 89.29%
Basin B3 - Land Use 710 - 0.04 sq mi. - 87.27%
Basin B3 - Land Use 750 - 0.01 sq mi. - 12.73%
Basin B4 - Land Use 710 - 0.04 sq mi. - 99.54%
Basin B4 - Land Use 750 - 0.00 sq mi. - 0.46%
Basin B5 - Land Use 620 - 0.01 sq mi. - 8.14%
Basin B5 - Land Use 710 - 0.16 sq mi. - 91.86%
Basin B6 - Land Use 710 - 0.02 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  0.55 sq mi. - 100.00%
    Land Use 220 - 0.01 sq mi. - 1.66%
    Land Use 620 - 0.01 sq mi. - 2.56%
    Land Use 710 - 0.52 sq mi. - 94.71%
    Land Use 750 - 0.01 sq mi. - 1.07%
Input Polygons Overlay Areas:
  Basin B1 - 0.19 sq mi. - 100.00%
  Basin B2 - 0.09 sq mi. - 100.00%
  Basin B3 - 0.05 sq mi. - 100.00%
  Basin B4 - 0.04 sq mi. - 100.00%
  Basin B5 - 0.17 sq mi. - 100.00%
  Basin B6 - 0.02 sq mi. - 100.00%

Basin C
Soil Type Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Soil Type
Overlay Coverage Attribute -> SCS Soil

Overlay Areas and Percentages

Basin C1 - SCS Soil 645110 - 0.08 sq mi. - 93.18%
Basin C1 - SCS Soil 64512 - 0.01 sq mi. - 6.03%
Basin C1 - SCS Soil 64598 - 0.00 sq mi. - 0.79%
Basin C2 - SCS Soil 645110 - 0.05 sq mi. - 99.21%
Basin C2 - SCS Soil 64513 - 0.00 sq mi. - 0.79%
Basin C3 - SCS Soil 645110 - 0.05 sq mi. - 64.82%
Basin C3 - SCS Soil 64513 - 0.03 sq mi. - 35.18%
Basin C4 - SCS Soil 645110 - 0.00 sq mi. - 8.63%
Basin C4 - SCS Soil 64513 - 0.02 sq mi. - 91.37%

Overlay Summary

Input Coverage Overlay Area:
  0.23 sq mi. - 100.00%
    SCS Soil 645110 - 0.18 sq mi. - 75.87%
    SCS Soil 64512 - 0.01 sq mi. - 2.26%
    SCS Soil 64513 - 0.05 sq mi. - 21.58%
    SCS Soil 64598 - 0.00 sq mi. - 0.30%
Input Polygons Overlay Areas:
  Basin C1 - 0.09 sq mi. - 100.00%
  Basin C2 - 0.05 sq mi. - 100.00%
  Basin C3 - 0.07 sq mi. - 100.00%
  Basin C4 - 0.03 sq mi. - 100.00%

Basin C
Land Use Covergae

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Land Use
Overlay Coverage Attribute -> Land Use

Overlay Areas and Percentages

Basin C1 - Land Use 730 - 0.09 sq mi. - 100.00%
Basin C2 - Land Use 730 - 0.05 sq mi. - 100.00%
Basin C3 - Land Use 730 - 0.07 sq mi. - 100.00%
Basin C4 - Land Use 730 - 0.03 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  0.23 sq mi. - 100.00%
    Land Use 730 - 0.23 sq mi. - 100.00%
Input Polygons Overlay Areas:
  Basin C1 - 0.09 sq mi. - 100.00%
  Basin C2 - 0.05 sq mi. - 100.00%
  Basin C3 - 0.07 sq mi. - 100.00%
  Basin C4 - 0.03 sq mi. - 100.00%

Basin D
Soil Type Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Soil Type
Overlay Coverage Attribute -> SCS Soil

Overlay Areas and Percentages

Basin D1 - SCS Soil 645110 - 0.12 sq mi. - 99.79%
Basin D1 - SCS Soil 645112 - 0.00 sq mi. - 0.21%
Basin D10 - SCS Soil 645110 - 0.05 sq mi. - 50.35%
Basin D10 - SCS Soil 64513 - 0.05 sq mi. - 49.65%
Basin D11 - SCS Soil 645110 - 0.03 sq mi. - 12.25%
Basin D11 - SCS Soil 64513 - 0.24 sq mi. - 87.75%
Basin D12 - SCS Soil 645110 - 0.11 sq mi. - 100.00%
Basin D13 - SCS Soil 645110 - 0.14 sq mi. - 67.92%
Basin D13 - SCS Soil 64513 - 0.07 sq mi. - 32.08%
Basin D14 - SCS Soil 645110 - 0.10 sq mi. - 100.00%
Basin D15 - SCS Soil 645110 - 0.15 sq mi. - 100.00%
Basin D16 - SCS Soil 645110 - 0.31 sq mi. - 71.82%
Basin D16 - SCS Soil 64513 - 0.12 sq mi. - 28.18%
Basin D2 - SCS Soil 645110 - 0.03 sq mi. - 100.00%
Basin D3 - SCS Soil 645110 - 0.05 sq mi. - 51.05%
Basin D3 - SCS Soil 64513 - 0.05 sq mi. - 48.95%
Basin D4 - SCS Soil 645110 - 0.02 sq mi. - 26.27%
Basin D4 - SCS Soil 64513 - 0.06 sq mi. - 73.73%
Basin D5 - SCS Soil 645110 - 0.15 sq mi. - 97.85%
Basin D5 - SCS Soil 64513 - 0.00 sq mi. - 2.15%
Basin D6 - SCS Soil 645110 - 0.04 sq mi. - 93.17%
Basin D6 - SCS Soil 64513 - 0.00 sq mi. - 6.83%
Basin D7 - SCS Soil 645110 - 0.18 sq mi. - 100.00%
Basin D8 - SCS Soil 645110 - 0.01 sq mi. - 67.57%
Basin D8 - SCS Soil 64513 - 0.01 sq mi. - 32.43%
Basin D9 - SCS Soil 645110 - 0.03 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  2.15 sq mi. - 100.00%
    SCS Soil 645110 - 1.54 sq mi. - 71.86%
    SCS Soil 645112 - 0.00 sq mi. - 0.01%
    SCS Soil 64513 - 0.60 sq mi. - 28.13%
Input Polygons Overlay Areas:
  Basin D1 - 0.12 sq mi. - 100.00%
  Basin D10 - 0.11 sq mi. - 100.00%
  Basin D11 - 0.27 sq mi. - 100.00%
  Basin D12 - 0.11 sq mi. - 100.00%
  Basin D13 - 0.20 sq mi. - 100.00%
  Basin D14 - 0.10 sq mi. - 100.00%
  Basin D15 - 0.15 sq mi. - 100.00%
  Basin D16 - 0.44 sq mi. - 100.00%
  Basin D2 - 0.03 sq mi. - 100.00%
  Basin D3 - 0.10 sq mi. - 100.00%
  Basin D4 - 0.09 sq mi. - 100.00%
  Basin D5 - 0.16 sq mi. - 100.00%
  Basin D6 - 0.04 sq mi. - 100.00%
  Basin D7 - 0.18 sq mi. - 100.00%

Basin D8 - 0.02 sq mi. - 100.00%
Basin D9 - 0.03 sq mi. - 100.00%

Basin D
Land Use Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Land Use
Overlay Coverage Attribute -> Land Use

Overlay Areas and Percentages

Basin D1 - Land Use 730 - 0.12 sq mi. - 100.00%
Basin D10 - Land Use 730 - 0.11 sq mi. - 100.00%
Basin D11 - Land Use 730 - 0.27 sq mi. - 100.00%
Basin D12 - Land Use 730 - 0.11 sq mi. - 100.00%
Basin D13 - Land Use 730 - 0.20 sq mi. - 99.50%
Basin D13 - Land Use 900 - 0.00 sq mi. - 0.50%
Basin D14 - Land Use 730 - 0.01 sq mi. - 13.97%
Basin D14 - Land Use 900 - 0.09 sq mi. - 86.03%
Basin D15 - Land Use 730 - 0.15 sq mi. - 97.33%
Basin D15 - Land Use 900 - 0.00 sq mi. - 2.67%
Basin D16 - Land Use 510 - 0.02 sq mi. - 5.33%
Basin D16 - Land Use 730 - 0.12 sq mi. - 26.71%
Basin D16 - Land Use 900 - 0.30 sq mi. - 67.96%
Basin D2 - Land Use 730 - 0.03 sq mi. - 100.00%
Basin D3 - Land Use 730 - 0.09 sq mi. - 89.79%
Basin D3 - Land Use 750 - 0.01 sq mi. - 10.21%
Basin D4 - Land Use 730 - 0.09 sq mi. - 100.00%
Basin D5 - Land Use 730 - 0.14 sq mi. - 87.79%
Basin D5 - Land Use 900 - 0.02 sq mi. - 12.21%
Basin D6 - Land Use 730 - 0.04 sq mi. - 100.00%
Basin D7 - Land Use 730 - 0.03 sq mi. - 17.75%
Basin D7 - Land Use 900 - 0.15 sq mi. - 82.25%
Basin D8 - Land Use 730 - 0.02 sq mi. - 100.00%
Basin D9 - Land Use 730 - 0.02 sq mi. - 81.82%
Basin D9 - Land Use 900 - 0.00 sq mi. - 18.18%

Overlay Summary

Input Coverage Overlay Area:
  2.15 sq mi. - 100.00%
    Land Use 510 - 0.02 sq mi. - 1.09%
    Land Use 730 - 1.55 sq mi. - 72.15%
    Land Use 750 - 0.01 sq mi. - 0.47%
    Land Use 900 - 0.57 sq mi. - 26.30%
Input Polygons Overlay Areas:
  Basin D1 - 0.12 sq mi. - 100.00%
  Basin D10 - 0.11 sq mi. - 100.00%
  Basin D11 - 0.27 sq mi. - 100.00%
  Basin D12 - 0.11 sq mi. - 100.00%
  Basin D13 - 0.20 sq mi. - 100.00%
  Basin D14 - 0.10 sq mi. - 100.00%
  Basin D15 - 0.15 sq mi. - 100.00%
  Basin D16 - 0.44 sq mi. - 100.00%
  Basin D2 - 0.03 sq mi. - 100.00%
  Basin D3 - 0.10 sq mi. - 100.00%
  Basin D4 - 0.09 sq mi. - 100.00%
  Basin D5 - 0.16 sq mi. - 100.00%
  Basin D6 - 0.04 sq mi. - 100.00%
  Basin D7 - 0.18 sq mi. - 100.00%

Basin D8 - 0.02 sq mi. - 100.00%
Basin D9 - 0.03 sq mi. - 100.00%

Basin E
Soil Type Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Soil Type
Overlay Coverage Attribute -> SCS Soil

Overlay Areas and Percentages

Basin E1 - SCS Soil 645110 - 0.09 sq mi. - 100.00%
Basin E2 - SCS Soil 645110 - 0.11 sq mi. - 100.00%
Basin E3 - SCS Soil 645110 - 0.09 sq mi. - 100.00%
Basin E4 - SCS Soil 645110 - 0.07 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  0.36 sq mi. - 100.00%
    SCS Soil 645110 - 0.36 sq mi. - 100.00%
Input Polygons Overlay Areas:
  Basin E1 - 0.09 sq mi. - 100.00%
  Basin E2 - 0.11 sq mi. - 100.00%
  Basin E3 - 0.09 sq mi. - 100.00%
  Basin E4 - 0.07 sq mi. - 100.00%

Basin E
Land Use Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Land Use
Overlay Coverage Attribute -> Land Use

Overlay Areas and Percentages

Basin E1 - Land Use 900 - 0.09 sq mi. - 100.00%
Basin E2 - Land Use 900 - 0.11 sq mi. - 100.00%
Basin E3 - Land Use 900 - 0.09 sq mi. - 100.00%
Basin E4 - Land Use 900 - 0.07 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  0.36 sq mi. - 100.00%
    Land Use 900 - 0.36 sq mi. - 100.00%
Input Polygons Overlay Areas:
  Basin E1 - 0.09 sq mi. - 100.00%
  Basin E2 - 0.11 sq mi. - 100.00%
  Basin E3 - 0.09 sq mi. - 100.00%
  Basin E4 - 0.07 sq mi. - 100.00%

Basin F
Soil Type Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Soil Type
Overlay Coverage Attribute -> SCS Soil

Overlay Areas and Percentages

Basin F1 - SCS Soil 64510 - 0.00 sq mi. - 2.40%
Basin F1 - SCS Soil 645110 - 0.17 sq mi. - 96.97%
Basin F1 - SCS Soil 6453 - 0.00 sq mi. - 0.63%
Basin F2 - SCS Soil 645110 - 0.30 sq mi. - 100.00%
Basin F3 - SCS Soil 645110 - 0.06 sq mi. - 100.00%
Basin F4 - SCS Soil 645110 - 0.15 sq mi. - 81.28%
Basin F4 - SCS Soil 64513 - 0.04 sq mi. - 18.72%

Overlay Summary

Input Coverage Overlay Area:
  0.71 sq mi. - 100.00%
    SCS Soil 64510 - 0.00 sq mi. - 0.58%
    SCS Soil 645110 - 0.67 sq mi. - 94.30%
    SCS Soil 64513 - 0.04 sq mi. - 4.97%
    SCS Soil 6453 - 0.00 sq mi. - 0.15%
Input Polygons Overlay Areas:
  Basin F1 - 0.17 sq mi. - 100.00%
  Basin F2 - 0.30 sq mi. - 100.00%
  Basin F3 - 0.06 sq mi. - 100.00%
  Basin F4 - 0.19 sq mi. - 100.00%

Basin F
Land Use Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Land Use
Overlay Coverage Attribute -> Land Use

Overlay Areas and Percentages

Basin F1 - Land Use 730 - 0.00 sq mi. - 1.39%
Basin F1 - Land Use 740 - 0.01 sq mi. - 3.40%
Basin F1 - Land Use 900 - 0.16 sq mi. - 95.21%
Basin F2 - Land Use 730 - 0.07 sq mi. - 24.20%
Basin F2 - Land Use 900 - 0.23 sq mi. - 75.80%
Basin F3 - Land Use 730 - 0.00 sq mi. - 4.65%
Basin F3 - Land Use 900 - 0.05 sq mi. - 95.35%
Basin F4 - Land Use 730 - 0.02 sq mi. - 8.68%
Basin F4 - Land Use 900 - 0.17 sq mi. - 91.32%

Overlay Summary

Input Coverage Overlay Area:
  0.71 sq mi. - 100.00%
    Land Use 730 - 0.09 sq mi. - 13.06%
    Land Use 740 - 0.01 sq mi. - 0.82%
    Land Use 900 - 0.62 sq mi. - 86.12%
Input Polygons Overlay Areas:
  Basin F1 - 0.17 sq mi. - 100.00%
  Basin F2 - 0.30 sq mi. - 100.00%
  Basin F3 - 0.06 sq mi. - 100.00%
  Basin F4 - 0.19 sq mi. - 100.00%

Basin G
Soil Type Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Soil Type
Overlay Coverage Attribute -> SCS Soil

Overlay Areas and Percentages

Basin G1 - SCS Soil 645110 - 0.15 sq mi. - 91.68%
Basin G1 - SCS Soil 6453 - 0.01 sq mi. - 8.32%
Basin G2 - SCS Soil 645110 - 0.05 sq mi. - 100.00%
Basin G3 - SCS Soil 645110 - 0.02 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  0.23 sq mi. - 100.00%
    SCS Soil 645110 - 0.21 sq mi. - 94.15%
    SCS Soil 6453 - 0.01 sq mi. - 5.85%
Input Polygons Overlay Areas:
  Basin G1 - 0.16 sq mi. - 100.00%
  Basin G2 - 0.05 sq mi. - 100.00%
  Basin G3 - 0.02 sq mi. - 100.00%

Basin G
Land Use Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Land Use
Overlay Coverage Attribute -> Land Use

Overlay Areas and Percentages

Basin G1 - Land Use 740 - 0.00 sq mi. - 2.51%
Basin G1 - Land Use 900 - 0.16 sq mi. - 97.49%
Basin G2 - Land Use 900 - 0.05 sq mi. - 100.00%
Basin G3 - Land Use 900 - 0.02 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  0.23 sq mi. - 100.00%
    Land Use 740 - 0.00 sq mi. - 1.77%
    Land Use 900 - 0.22 sq mi. - 98.23%
Input Polygons Overlay Areas:
  Basin G1 - 0.16 sq mi. - 100.00%
  Basin G2 - 0.05 sq mi. - 100.00%
  Basin G3 - 0.02 sq mi. - 100.00%

Basin H
Soil Type Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Soil Type
Overlay Coverage Attribute -> SCS Soil

Overlay Areas and Percentages

Basin H1 - SCS Soil 645110 - 0.12 sq mi. - 99.23%
Basin H1 - SCS Soil 64513 - 0.00 sq mi. - 0.77%
Basin H2 - SCS Soil 645110 - 0.14 sq mi. - 61.81%
Basin H2 - SCS Soil 64513 - 0.09 sq mi. - 38.19%

Overlay Summary

Input Coverage Overlay Area:
  0.35 sq mi. - 100.00%
    SCS Soil 645110 - 0.26 sq mi. - 74.40%
    SCS Soil 64513 - 0.09 sq mi. - 25.60%
Input Polygons Overlay Areas:
  Basin H1 - 0.12 sq mi. - 100.00%
  Basin H2 - 0.23 sq mi. - 100.00%

Basin H
Land Use Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Land Use
Overlay Coverage Attribute -> Land Use

Overlay Areas and Percentages

Basin H1 - Land Use 900 - 0.12 sq mi. - 100.00%
Basin H2 - Land Use 900 - 0.23 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  0.35 sq mi. - 100.00%
    Land Use 900 - 0.35 sq mi. - 100.00%
Input Polygons Overlay Areas:
  Basin H1 - 0.12 sq mi. - 100.00%
  Basin H2 - 0.23 sq mi. - 100.00%

Basin I
Soil Type Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Soil Type
Overlay Coverage Attribute -> SCS Soil

Overlay Areas and Percentages

Basin I1 - SCS Soil 645110 - 0.15 sq mi. - 99.35%
Basin I1 - SCS Soil 64513 - 0.00 sq mi. - 0.65%
Basin I2 - SCS Soil 645110 - 0.08 sq mi. - 73.81%
Basin I2 - SCS Soil 64513 - 0.03 sq mi. - 26.19%
Basin I3 - SCS Soil 645110 - 0.01 sq mi. - 31.18%
Basin I3 - SCS Soil 64513 - 0.02 sq mi. - 68.82%
Basin I4 - SCS Soil 645110 - 0.09 sq mi. - 36.78%
Basin I4 - SCS Soil 64513 - 0.16 sq mi. - 63.22%

Overlay Summary

Input Coverage Overlay Area:
  0.54 sq mi. - 100.00%
    SCS Soil 645110 - 0.33 sq mi. - 61.61%
    SCS Soil 64513 - 0.21 sq mi. - 38.39%
Input Polygons Overlay Areas:
  Basin I1 - 0.15 sq mi. - 100.00%
  Basin I2 - 0.11 sq mi. - 100.00%
  Basin I3 - 0.02 sq mi. - 100.00%
  Basin I4 - 0.25 sq mi. - 100.00%

Basin I
Land Use Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Land Use
Overlay Coverage Attribute -> Land Use

Overlay Areas and Percentages

Basin I1 - Land Use 740 - 0.00 sq mi. - 1.29%
Basin I1 - Land Use 900 - 0.15 sq mi. - 98.71%
Basin I2 - Land Use 900 - 0.11 sq mi. - 100.00%
Basin I3 - Land Use 900 - 0.02 sq mi. - 100.00%
Basin I4 - Land Use 510 - 0.00 sq mi. - 0.19%
Basin I4 - Land Use 570 - 0.03 sq mi. - 11.18%
Basin I4 - Land Use 730 - 0.00 sq mi. - 0.09%
Basin I4 - Land Use 900 - 0.22 sq mi. - 88.53%

Overlay Summary

Input Coverage Overlay Area:
  0.54 sq mi. - 100.00%
    Land Use 510 - 0.00 sq mi. - 0.09%
    Land Use 570 - 0.03 sq mi. - 5.29%
    Land Use 730 - 0.00 sq mi. - 0.04%
    Land Use 740 - 0.00 sq mi. - 0.36%
    Land Use 900 - 0.51 sq mi. - 94.22%
Input Polygons Overlay Areas:
  Basin I1 - 0.15 sq mi. - 100.00%
  Basin I2 - 0.11 sq mi. - 100.00%
  Basin I3 - 0.02 sq mi. - 100.00%
  Basin I4 - 0.25 sq mi. - 100.00%

Basin J
Soil Type Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Soil Type
Overlay Coverage Attribute -> SCS Soil

Overlay Areas and Percentages

Basin J1 - SCS Soil 645110 - 0.14 sq mi. - 77.97%
Basin J1 - SCS Soil 64513 - 0.04 sq mi. - 22.03%
Basin J10 - SCS Soil 645110 - 0.06 sq mi. - 29.42%
Basin J10 - SCS Soil 64513 - 0.12 sq mi. - 58.84%
Basin J10 - SCS Soil 64552 - 0.02 sq mi. - 11.74%
Basin J11 - SCS Soil 645110 - 0.02 sq mi. - 69.74%
Basin J11 - SCS Soil 64513 - 0.01 sq mi. - 30.26%
Basin J2 - SCS Soil 645110 - 0.03 sq mi. - 69.23%
Basin J2 - SCS Soil 64513 - 0.01 sq mi. - 30.77%
Basin J3 - SCS Soil 645110 - 0.06 sq mi. - 77.46%
Basin J3 - SCS Soil 64513 - 0.02 sq mi. - 22.54%
Basin J4 - SCS Soil 645110 - 0.03 sq mi. - 77.60%
Basin J4 - SCS Soil 64513 - 0.01 sq mi. - 22.40%
Basin J5 - SCS Soil 645110 - 0.04 sq mi. - 74.12%
Basin J5 - SCS Soil 64513 - 0.01 sq mi. - 25.88%
Basin J6 - SCS Soil 645110 - 0.04 sq mi. - 83.44%
Basin J6 - SCS Soil 64513 - 0.01 sq mi. - 16.56%
Basin J7 - SCS Soil 645110 - 0.05 sq mi. - 90.34%
Basin J7 - SCS Soil 64513 - 0.01 sq mi. - 9.66%
Basin J8 - SCS Soil 645110 - 0.08 sq mi. - 78.14%
Basin J8 - SCS Soil 64513 - 0.02 sq mi. - 21.86%
Basin J9 - SCS Soil 645110 - 0.01 sq mi. - 71.11%
Basin J9 - SCS Soil 64513 - 0.00 sq mi. - 28.89%

Overlay Summary

Input Coverage Overlay Area:
  0.81 sq mi. - 100.00%
    SCS Soil 645110 - 0.53 sq mi. - 65.72%
    SCS Soil 64513 - 0.25 sq mi. - 31.30%
    SCS Soil 64552 - 0.02 sq mi. - 2.98%
Input Polygons Overlay Areas:
  Basin J1 - 0.17 sq mi. - 100.00%
  Basin J10 - 0.21 sq mi. - 100.00%
  Basin J11 - 0.02 sq mi. - 100.00%
  Basin J2 - 0.04 sq mi. - 100.00%
  Basin J3 - 0.07 sq mi. - 100.00%
  Basin J4 - 0.04 sq mi. - 100.00%
  Basin J5 - 0.05 sq mi. - 100.00%
  Basin J6 - 0.05 sq mi. - 100.00%
  Basin J7 - 0.05 sq mi. - 100.00%
  Basin J8 - 0.10 sq mi. - 100.00%
  Basin J9 - 0.01 sq mi. - 100.00%

Basin J
Land Use Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Land Use
Overlay Coverage Attribute -> Land Use

Overlay Areas and Percentages

Basin J1 - Land Use 900 - 0.17 sq mi. - 100.00%
Basin J10 - Land Use 710 - 0.03 sq mi. - 14.93%
Basin J10 - Land Use 730 - 0.07 sq mi. - 32.46%
Basin J10 - Land Use 900 - 0.11 sq mi. - 52.61%
Basin J11 - Land Use 900 - 0.02 sq mi. - 100.00%
Basin J2 - Land Use 900 - 0.04 sq mi. - 100.00%
Basin J3 - Land Use 900 - 0.07 sq mi. - 100.00%
Basin J4 - Land Use 900 - 0.04 sq mi. - 100.00%
Basin J5 - Land Use 900 - 0.05 sq mi. - 100.00%
Basin J6 - Land Use 900 - 0.05 sq mi. - 100.00%
Basin J7 - Land Use 900 - 0.05 sq mi. - 100.00%
Basin J8 - Land Use 900 - 0.10 sq mi. - 100.00%
Basin J9 - Land Use 900 - 0.01 sq mi. - 100.00%

Overlay Summary

Input Coverage Overlay Area:
  0.81 sq mi. - 100.00%
    Land Use 710 - 0.03 sq mi. - 3.78%
    Land Use 730 - 0.07 sq mi. - 8.23%
    Land Use 900 - 0.71 sq mi. - 87.99%
Input Polygons Overlay Areas:
  Basin J1 - 0.17 sq mi. - 100.00%
  Basin J10 - 0.21 sq mi. - 100.00%
  Basin J11 - 0.02 sq mi. - 100.00%
  Basin J2 - 0.04 sq mi. - 100.00%
  Basin J3 - 0.07 sq mi. - 100.00%
  Basin J4 - 0.04 sq mi. - 100.00%
  Basin J5 - 0.05 sq mi. - 100.00%
  Basin J6 - 0.05 sq mi. - 100.00%
  Basin J7 - 0.05 sq mi. - 100.00%
  Basin J8 - 0.10 sq mi. - 100.00%
  Basin J9 - 0.01 sq mi. - 100.00%

Basin K
Soil Type Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Soil Type
Overlay Coverage Attribute -> SCS Soil

Overlay Areas and Percentages

Basin K1 - SCS Soil 645110 - 0.04 sq mi. - 45.10%
Basin K1 - SCS Soil 64512 - 0.02 sq mi. - 20.59%
Basin K1 - SCS Soil 64598 - 0.03 sq mi. - 34.31%
Basin K10 - SCS Soil 64513 - 0.09 sq mi. - 22.68%
Basin K10 - SCS Soil 64552 - 0.04 sq mi. - 9.07%
Basin K10 - SCS Soil 64572 - 0.19 sq mi. - 47.64%
Basin K10 - SCS Soil 64598 - 0.08 sq mi. - 20.60%
Basin K11 - SCS Soil 64572 - 0.27 sq mi. - 90.79%
Basin K11 - SCS Soil 64598 - 0.03 sq mi. - 9.21%
Basin K12 - SCS Soil 64572 - 0.11 sq mi. - 100.00%
Basin K13 - SCS Soil 64513 - 0.07 sq mi. - 88.68%
Basin K13 - SCS Soil 64572 - 0.01 sq mi. - 6.60%
Basin K13 - SCS Soil 64598 - 0.00 sq mi. - 4.72%
Basin K14 - SCS Soil 64513 - 0.22 sq mi. - 74.05%
Basin K14 - SCS Soil 64572 - 0.08 sq mi. - 24.94%
Basin K14 - SCS Soil 64598 - 0.00 sq mi. - 1.02%
Basin K15 - SCS Soil 645110 - 0.09 sq mi. - 37.82%
Basin K15 - SCS Soil 64512 - 0.06 sq mi. - 24.68%
Basin K15 - SCS Soil 64513 - 0.07 sq mi. - 27.88%
Basin K15 - SCS Soil 64598 - 0.02 sq mi. - 9.62%
Basin K16 - SCS Soil 645110 - 0.05 sq mi. - 21.31%
Basin K16 - SCS Soil 64512 - 0.15 sq mi. - 65.64%
Basin K16 - SCS Soil 64598 - 0.03 sq mi. - 13.06%
Basin K17 - SCS Soil 645110 - 0.02 sq mi. - 13.16%
Basin K17 - SCS Soil 64512 - 0.12 sq mi. - 83.16%
Basin K17 - SCS Soil 64598 - 0.01 sq mi. - 3.68%
Basin K18 - SCS Soil 645110 - 0.02 sq mi. - 20.65%
Basin K18 - SCS Soil 64512 - 0.09 sq mi. - 79.35%
Basin K19 - SCS Soil 645110 - 0.02 sq mi. - 23.02%
Basin K19 - SCS Soil 64512 - 0.06 sq mi. - 56.12%
Basin K19 - SCS Soil 64598 - 0.02 sq mi. - 20.86%
Basin K20 - SCS Soil 645110 - 0.04 sq mi. - 23.81%
Basin K20 - SCS Soil 64512 - 0.03 sq mi. - 14.72%
Basin K20 - SCS Soil 64513 - 0.11 sq mi. - 61.47%
Basin K21 - SCS Soil 645110 - 0.11 sq mi. - 84.21%
Basin K21 - SCS Soil 64513 - 0.02 sq mi. - 15.20%
Basin K21 - SCS Soil 64572 - 0.00 sq mi. - 0.58%
Basin K22 - SCS Soil 645110 - 0.05 sq mi. - 8.63%
Basin K22 - SCS Soil 64512 - 0.07 sq mi. - 11.88%
Basin K22 - SCS Soil 64513 - 0.06 sq mi. - 9.13%
Basin K22 - SCS Soil 64572 - 0.37 sq mi. - 60.75%
Basin K22 - SCS Soil 64598 - 0.06 sq mi. - 9.63%
Basin K23 - SCS Soil 64572 - 0.08 sq mi. - 100.00%
Basin K24 - SCS Soil 64512 - 0.01 sq mi. - 1.82%
Basin K24 - SCS Soil 64572 - 0.27 sq mi. - 89.61%
Basin K24 - SCS Soil 64598 - 0.03 sq mi. - 8.57%
Basin K25 - SCS Soil 645110 - 0.19 sq mi. - 45.22%
Basin K25 - SCS Soil 64512 - 0.23 sq mi. - 54.78%
Basin K26 - SCS Soil 645110 - 0.02 sq mi. - 13.37%

Basin K26 - SCS Soil 64512 - 0.11 sq mi. - 84.88%
Basin K26 - SCS Soil 64572 - 0.00 sq mi. - 1.74%
Basin K27 - SCS Soil 645110 - 0.03 sq mi. - 11.11%
Basin K27 - SCS Soil 64512 - 0.13 sq mi. - 50.00%
Basin K27 - SCS Soil 64545 - 0.03 sq mi. - 9.65%
Basin K27 - SCS Soil 64572 - 0.08 sq mi. - 29.24%
Basin K28 - SCS Soil 64512 - 0.12 sq mi. - 35.89%
Basin K28 - SCS Soil 64572 - 0.22 sq mi. - 64.11%
Basin K29 - SCS Soil 64512 - 0.03 sq mi. - 15.85%
Basin K29 - SCS Soil 64572 - 0.18 sq mi. - 84.15%
Basin K3 - SCS Soil 645110 - 0.04 sq mi. - 58.14%
Basin K3 - SCS Soil 64513 - 0.00 sq mi. - 1.16%
Basin K3 - SCS Soil 64598 - 0.03 sq mi. - 40.70%
Basin K30 - SCS Soil 64572 - 0.27 sq mi. - 100.00%
Basin K31 - SCS Soil 64572 - 0.04 sq mi. - 100.00%
Basin K32 - SCS Soil 645110 - 0.10 sq mi. - 48.46%
Basin K32 - SCS Soil 64512 - 0.10 sq mi. - 50.38%
Basin K32 - SCS Soil 64572 - 0.00 sq mi. - 1.15%
Basin K33 - SCS Soil 64512 - 0.05 sq mi. - 58.97%
Basin K33 - SCS Soil 64572 - 0.04 sq mi. - 41.03%
Basin K34 - SCS Soil 645110 - 0.04 sq mi. - 20.21%
Basin K34 - SCS Soil 64512 - 0.07 sq mi. - 31.71%
Basin K34 - SCS Soil 64572 - 0.11 sq mi. - 48.08%
Basin K35 - SCS Soil 645110 - 0.03 sq mi. - 9.30%
Basin K35 - SCS Soil 645112 - 0.00 sq mi. - 0.26%
Basin K35 - SCS Soil 64512 - 0.27 sq mi. - 89.41%
Basin K35 - SCS Soil 64598 - 0.00 sq mi. - 1.03%
Basin K4 - SCS Soil 645110 - 0.14 sq mi. - 48.45%
Basin K4 - SCS Soil 64513 - 0.11 sq mi. - 37.63%
Basin K4 - SCS Soil 64598 - 0.04 sq mi. - 13.92%
Basin K5 - SCS Soil 645110 - 0.02 sq mi. - 46.03%
Basin K5 - SCS Soil 64513 - 0.01 sq mi. - 28.57%
Basin K5 - SCS Soil 64598 - 0.01 sq mi. - 25.40%
Basin K6 - SCS Soil 645110 - 0.02 sq mi. - 27.84%
Basin K6 - SCS Soil 64513 - 0.04 sq mi. - 47.42%
Basin K6 - SCS Soil 64598 - 0.02 sq mi. - 24.74%
Basin K7 - SCS Soil 64598 - 0.06 sq mi. - 100.00%
Basin K8 - SCS Soil 64513 - 0.03 sq mi. - 79.17%
Basin K8 - SCS Soil 64598 - 0.01 sq mi. - 20.83%
Basin K9 - SCS Soil 64513 - 0.04 sq mi. - 49.47%
Basin K9 - SCS Soil 64552 - 0.02 sq mi. - 26.32%
Basin K9 - SCS Soil 64598 - 0.02 sq mi. - 24.21%

Overlay Summary

Input Coverage Overlay Area:
6.58 sq mi. - 100.00%
SCS Soil 645110 - 1.08 sq mi. - 16.44%
SCS Soil 645112 - 0.00 sq mi. - 0.01%
SCS Soil 64512 - 1.73 sq mi. - 26.23%
SCS Soil 64513 - 0.87 sq mi. - 13.22%
SCS Soil 64545 - 0.03 sq mi. - 0.39%
SCS Soil 64552 - 0.06 sq mi. - 0.85%
SCS Soil 64572 - 2.32 sq mi. - 35.22%
SCS Soil 64598 - 0.50 sq mi. - 7.65%
Input Polygons Overlay Areas:
Basin K1 - 0.08 sq mi. - 100.00%
Basin K10 - 0.41 sq mi. - 100.00%
Basin K11 - 0.30 sq mi. - 100.00%
Basin K12 - 0.11 sq mi. - 100.00%
Basin K13 - 0.08 sq mi. - 100.00%

Basin K14 - 0.30 sq mi. - 100.00%
Basin K15 - 0.24 sq mi. - 100.00%
Basin K16 - 0.22 sq mi. - 100.00%
Basin K17 - 0.15 sq mi. - 100.00%
Basin K18 - 0.12 sq mi. - 100.00%
Basin K19 - 0.11 sq mi. - 100.00%
Basin K20 - 0.18 sq mi. - 100.00%
Basin K21 - 0.13 sq mi. - 100.00%
Basin K22 - 0.62 sq mi. - 100.00%
Basin K23 - 0.08 sq mi. - 100.00%
Basin K24 - 0.30 sq mi. - 100.00%
Basin K25 - 0.42 sq mi. - 100.00%
Basin K26 - 0.13 sq mi. - 100.00%
Basin K27 - 0.26 sq mi. - 100.00%
Basin K28 - 0.34 sq mi. - 100.00%
Basin K29 - 0.22 sq mi. - 100.00%
Basin K3 - 0.07 sq mi. - 100.00%
Basin K30 - 0.27 sq mi. - 100.00%
Basin K31 - 0.04 sq mi. - 100.00%
Basin K32 - 0.20 sq mi. - 100.00%
Basin K33 - 0.09 sq mi. - 100.00%
Basin K34 - 0.22 sq mi. - 100.00%
Basin K35 - 0.30 sq mi. - 100.00%
Basin K4 - 0.30 sq mi. - 100.00%
Basin K5 - 0.05 sq mi. - 100.00%
Basin K6 - 0.07 sq mi. - 100.00%
Basin K7 - 0.06 sq mi. - 100.00%
Basin K8 - 0.04 sq mi. - 100.00%
Basin K9 - 0.07 sq mi. - 100.00%

Basin K
Land Use Coverage

Input Coverage Name -> Drainage
Input Coverage Attribute -> Basin Name

Overlay Coverage Name -> Land Use
Overlay Coverage Attribute -> Land Use

Overlay Areas and Percentages

Basin K1 - Land Use 900 - 0.08 sq mi. - 100.00%
Basin K10 - Land Use 710 - 0.23 sq mi. - 55.39%
Basin K10 - Land Use 730 - 0.08 sq mi. - 19.85%
Basin K10 - Land Use 900 - 0.10 sq mi. - 24.76%
Basin K11 - Land Use 710 - 0.23 sq mi. - 77.49%
Basin K11 - Land Use 900 - 0.07 sq mi. - 22.51%
Basin K12 - Land Use 710 - 0.03 sq mi. - 29.17%
Basin K12 - Land Use 730 - 0.08 sq mi. - 70.83%
Basin K13 - Land Use 900 - 0.08 sq mi. - 100.00%
Basin K14 - Land Use 900 - 0.30 sq mi. - 100.00%
Basin K15 - Land Use 900 - 0.24 sq mi. - 100.00%
Basin K16 - Land Use 900 - 0.22 sq mi. - 100.00%
Basin K17 - Land Use 900 - 0.15 sq mi. - 100.00%
Basin K18 - Land Use 900 - 0.12 sq mi. - 100.00%
Basin K19 - Land Use 900 - 0.11 sq mi. - 100.00%
Basin K20 - Land Use 900 - 0.18 sq mi. - 100.00%
Basin K21 - Land Use 900 - 0.13 sq mi. - 100.00%
Basin K22 - Land Use 900 - 0.62 sq mi. - 100.00%
Basin K23 - Land Use 900 - 0.08 sq mi. - 100.00%
Basin K24 - Land Use 900 - 0.30 sq mi. - 100.00%
Basin K25 - Land Use 900 - 0.42 sq mi. - 100.00%
Basin K26 - Land Use 900 - 0.13 sq mi. - 100.00%
Basin K27 - Land Use 900 - 0.26 sq mi. - 100.00%
Basin K28 - Land Use 900 - 0.34 sq mi. - 100.00%
Basin K29 - Land Use 900 - 0.22 sq mi. - 100.00%
Basin K3 - Land Use 900 - 0.07 sq mi. - 100.00%
Basin K30 - Land Use 900 - 0.27 sq mi. - 100.00%
Basin K31 - Land Use 900 - 0.04 sq mi. - 100.00%
Basin K32 - Land Use 900 - 0.20 sq mi. - 100.00%
Basin K33 - Land Use 900 - 0.09 sq mi. - 100.00%
Basin K34 - Land Use 900 - 0.22 sq mi. - 100.00%
Basin K35 - Land Use 900 - 0.30 sq mi. - 100.00%
Basin K4 - Land Use 900 - 0.30 sq mi. - 100.00%
Basin K5 - Land Use 900 - 0.05 sq mi. - 100.00%
Basin K6 - Land Use 900 - 0.07 sq mi. - 100.00%
Basin K7 - Land Use 900 - 0.06 sq mi. - 100.00%
Basin K8 - Land Use 900 - 0.04 sq mi. - 100.00%
Basin K9 - Land Use 710 - 0.02 sq mi. - 32.63%
Basin K9 - Land Use 900 - 0.05 sq mi. - 67.37%

Overlay Summary

Input Coverage Overlay Area:
  6.58 sq mi. - 100.00%
    Land Use 710 - 0.52 sq mi. - 7.83%
    Land Use 730 - 0.16 sq mi. - 2.42%
    Land Use 900 - 5.90 sq mi. - 89.74%
Input Polygons Overlay Areas:
  Basin K1 - 0.08 sq mi. - 100.00%

Basin K10 - 0.41 sq mi. - 100.00%
Basin K11 - 0.30 sq mi. - 100.00%
Basin K12 - 0.11 sq mi. - 100.00%
Basin K13 - 0.08 sq mi. - 100.00%
Basin K14 - 0.30 sq mi. - 100.00%
Basin K15 - 0.24 sq mi. - 100.00%
Basin K16 - 0.22 sq mi. - 100.00%
Basin K17 - 0.15 sq mi. - 100.00%
Basin K18 - 0.12 sq mi. - 100.00%
Basin K19 - 0.11 sq mi. - 100.00%
Basin K20 - 0.18 sq mi. - 100.00%
Basin K21 - 0.13 sq mi. - 100.00%
Basin K22 - 0.62 sq mi. - 100.00%
Basin K23 - 0.08 sq mi. - 100.00%
Basin K24 - 0.30 sq mi. - 100.00%
Basin K25 - 0.42 sq mi. - 100.00%
Basin K26 - 0.13 sq mi. - 100.00%
Basin K27 - 0.26 sq mi. - 100.00%
Basin K28 - 0.34 sq mi. - 100.00%
Basin K29 - 0.22 sq mi. - 100.00%
Basin K3 - 0.07 sq mi. - 100.00%
Basin K30 - 0.27 sq mi. - 100.00%
Basin K31 - 0.04 sq mi. - 100.00%
Basin K32 - 0.20 sq mi. - 100.00%
Basin K33 - 0.09 sq mi. - 100.00%
Basin K34 - 0.22 sq mi. - 100.00%
Basin K35 - 0.30 sq mi. - 100.00%
Basin K4 - 0.30 sq mi. - 100.00%
Basin K5 - 0.05 sq mi. - 100.00%
Basin K6 - 0.07 sq mi. - 100.00%
Basin K7 - 0.06 sq mi. - 100.00%
Basin K8 - 0.04 sq mi. - 100.00%
Basin K9 - 0.07 sq mi. - 100.00%

D.3 HYDROGRAPH ROUTING DATA

Basin A - Route Reach 2R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	009900	ft/ft
Discharg	88.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,487.11	ft
Elevation Range	36.20 to 1,497.80	
Flow Area	45.1	ft²
Wetted Perimeter	83.96	ft
Top Width	83.93	ft
Actual Depth	0.91	ft
Critical Elevation	1,486.87	ft
Critical Slope	0.051446	ft/ft
Velocity	1.95	ft/s
Velocity Head	0.06	ft
Specific Energy	1,487.17	ft
Froude Number	0.47	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+45	0.070
1+45	2+91	0.050
2+91	4+10	0.070

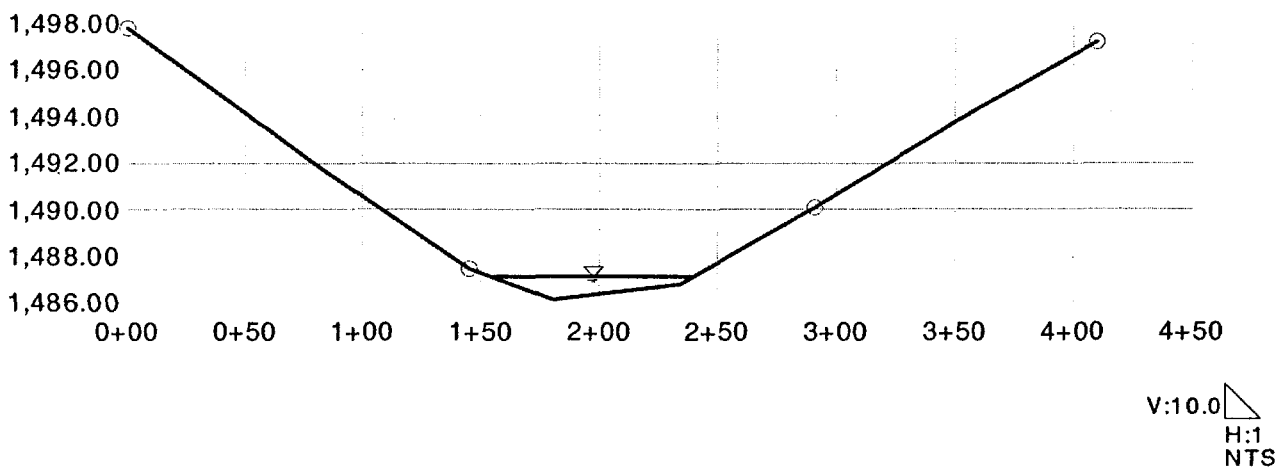
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,497.80
0+83	1,491.70
1+45	1,487.50
1+80	1,486.20
2+34	1,486.80
2+91	1,490.10
3+50	1,493.80
4+10	1,497.20

Basin A - Route Reach 2R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.009900	ft/ft
Water Surface Elev	1,487.11	ft
Elevation Range	36.20 to 1,497.80	
Discharge	88.00	cfs



Basin A - Route Reach 3R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	010200	ft/ft
Discharg	641.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,508.12	ft
Elevation Range	06.10 to 1,521.30	
Flow Area	177.6	ft²
Wetted Perimeter	134.69	ft
Top Width	134.60	ft
Actual Depth	2.02	ft
Critical Elevation	1,507.59	ft
Critical Slope	0.036403	ft/ft
Velocity	3.61	ft/s
Velocity Head	0.20	ft
Specific Energy	1,508.32	ft
Froude Number	0.55	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+33	0.070
2+33	4+12	0.050
4+12	5+97	0.070

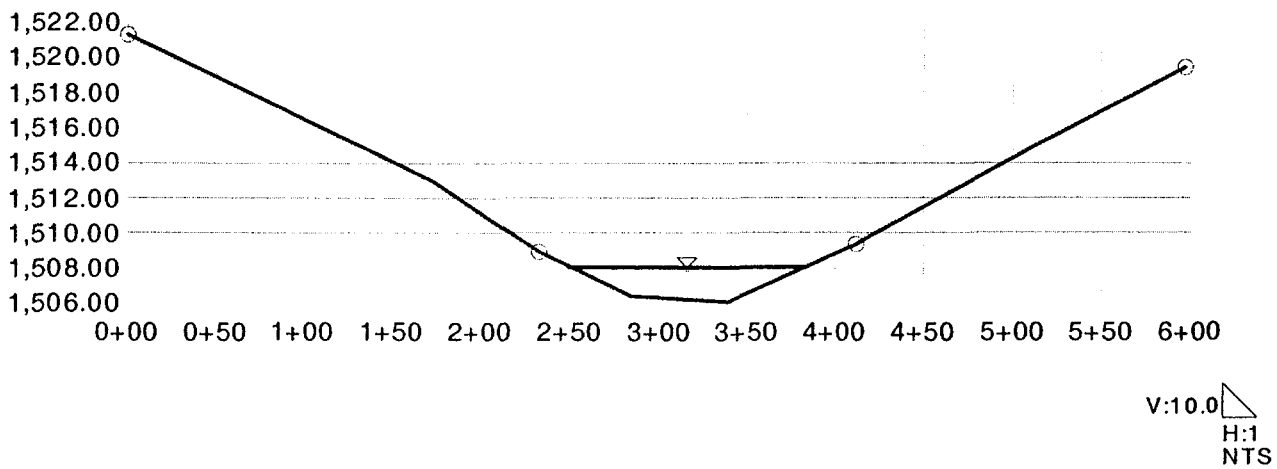
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,521.30
1+73	1,513.00
2+33	1,508.90
2+84	1,506.40
3+39	1,506.10
4+12	1,509.40
5+15	1,515.10
5+97	1,519.40

Basin A - Route Reach 3R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.050	
Slope	0.010200	ft/ft
Water Surface Elev.	1,508.12	ft
Elevation Range	)6.10 to 1,521.30	
Discharge	641.00	cfs



Basin A - Route Reach 4R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	011500	ft/ft
Discharg	483.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.051	
Water Surface Elev	1,529.96	ft
Elevation Range	28.40 to 1,538.00	
Flow Area	154.5	ft²
Wetted Perimeter	155.07	ft
Top Width	155.02	ft
Actual Depth	1.56	ft
Critical Elevation	1,529.58	ft
Critical Slope	0.041707	ft/ft
Velocity	3.13	ft/s
Velocity Head	0.15	ft
Specific Energy	1,530.11	ft
Froude Number	0.55	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+17	0.070
2+17	3+71	0.050
3+71	6+01	0.070

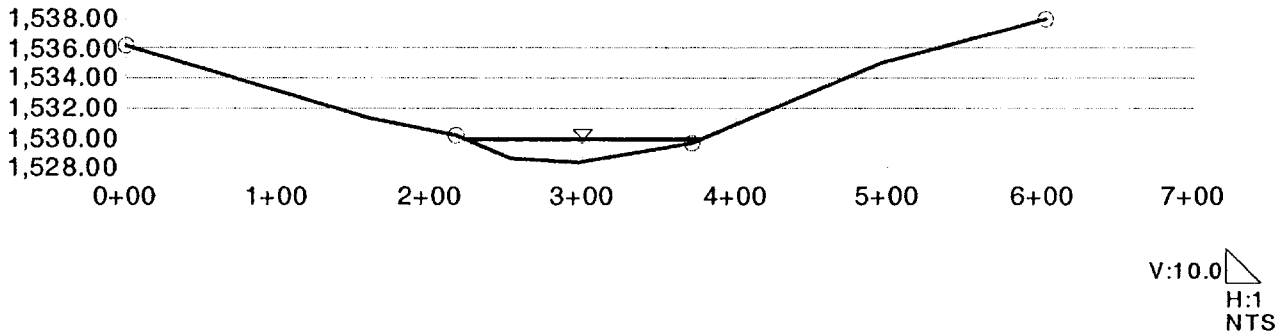
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,536.10
1+60	1,531.30
2+17	1,530.20
2+52	1,528.60
2+97	1,528.40
3+71	1,529.70
4+96	1,535.00
6+01	1,538.00

Basin A - Route Reach 4R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

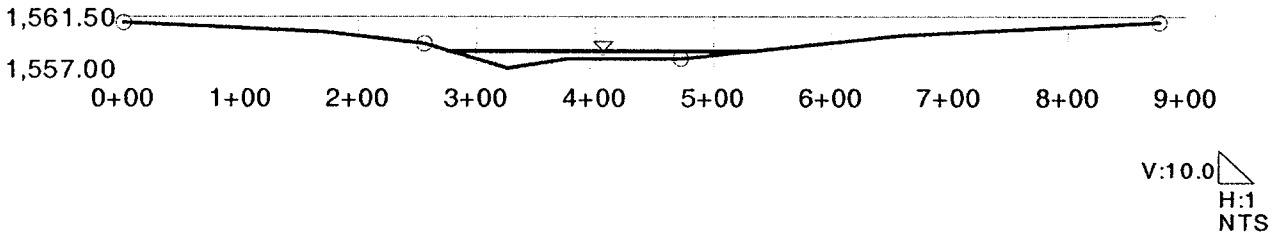
Section Data		
Mannings Coefficie	0.051	
Slope	0.011500	ft/ft
Water Surface Elev.	1,529.96	ft
Elevation Range	28.40 to 1,538.00	
Discharge	483.00	cfs



Basin A - Route Reach 5R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.055	
Slope	0.008200	ft/ft
Water Surface Elev.	1,558.61	ft
Elevation Range	57.16 to 1,561.03	
Discharge	349.00	cfs



Basin A - Route Reach 5R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	008200	ft/ft
Discharg	349.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.055	
Water Surface Elev	1,558.61	ft
Elevation Range	57.16 to 1,561.03	
Flow Area	182.0	ft²
Wetted Perimeter	260.50	ft
Top Width	260.47	ft
Actual Depth	1.45	ft
Critical Elevation	1,558.23	ft
Critical Slope	0.058434	ft/ft
Velocity	1.92	ft/s
Velocity Head	0.06	ft
Specific Energy	1,558.66	ft
Froude Number	0.40	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+56	0.070
2+56	4+72	0.050
4+72	8+77	0.070

Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,561.01
1+73	1,560.17
2+56	1,559.19
3+27	1,557.16
3+77	1,557.82
4+72	1,557.96
6+57	1,559.82
8+77	1,561.03

Basin A - Route Reach 6R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	008600	ft/ft
Discharg	299.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.055	
Water Surface Elev	1,588.30	ft
Elevation Range	37.20 to 1,589.80	
Flow Area	165.1	ft²
Wetted Perimeter	267.28	ft
Top Width	267.26	ft
Actual Depth	1.10	ft
Critical Elevation	1,587.94	ft
Critical Slope	0.058949	ft/ft
Velocity	1.81	ft/s
Velocity Head	0.05	ft
Specific Energy	1,588.35	ft
Froude Number	0.41	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+44	0.070
1+44	3+58	0.050
3+58	4+32	0.070

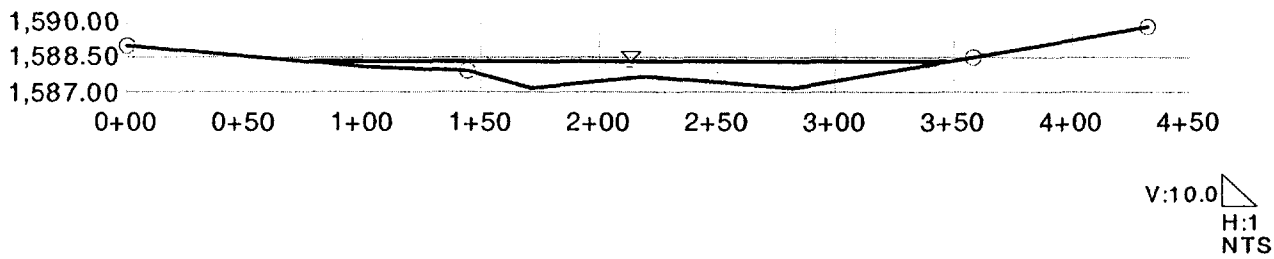
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,589.00
1+02	1,588.10
1+44	1,587.90
1+71	1,587.20
2+19	1,587.70
2+82	1,587.20
3+58	1,588.50
4+32	1,589.80

Basin A - Route Reach 6R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.055	
Slope	0.008600	ft/ft
Water Surface Elev	1,588.30	ft
Elevation Range	37.20 to 1,589.80	
Discharge	299.00	cfs



Basin A - Route Reach R7
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	008000	ft/ft
Discharg	94.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.058	
Water Surface Elev.	1,604.16	ft
Elevation Range	3.50 to 1,605.10	
Flow Area	85.0	ft²
Wetted Perimeter	255.24	ft
Top Width	255.23	ft
Actual Depth	0.66	ft
Critical Elevation	1,603.92	ft
Critical Slope	0.078205	ft/ft
Velocity	1.11	ft/s
Velocity Head	0.02	ft
Specific Energy	1,604.18	ft
Froude Number	0.34	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+70	0.070
1+70	3+32	0.050
3+32	4+82	0.070

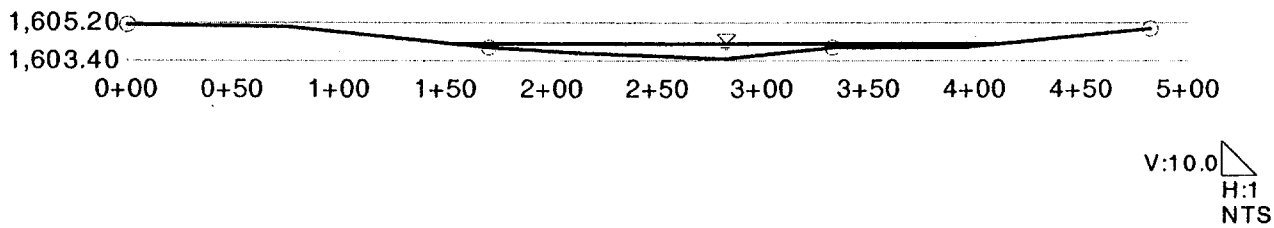
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,605.10
0+75	1,605.00
1+70	1,604.00
2+14	1,603.70
2+81	1,603.50
3+32	1,604.00
3+94	1,604.00
4+82	1,604.90

Basin A - Route Reach R7
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin A - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.058	
Slope	0.008000	ft/ft
Water Surface Elev.	1,604.16	ft
Elevation Range	03.50 to 1,605.10	
Discharge	94.00	cfs



Basin B - Route Reach 2R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin B - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	010500	ft/ft
Discharg	349.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev.	1,525.12	ft
Elevation Range	23.30 to 1,535.70	
Flow Area	105.2	ft²
Wetted Perimeter	92.63	ft
Top Width	92.52	ft
Actual Depth	1.82	ft
Critical Elevation	1,524.68	ft
Critical Slope	0.038672	ft/ft
Velocity	3.32	ft/s
Velocity Head	0.17	ft
Specific Energy	1,525.29	ft
Froude Number	0.55	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+65	0.070
1+65	3+75	0.050
3+75	4+86	0.070

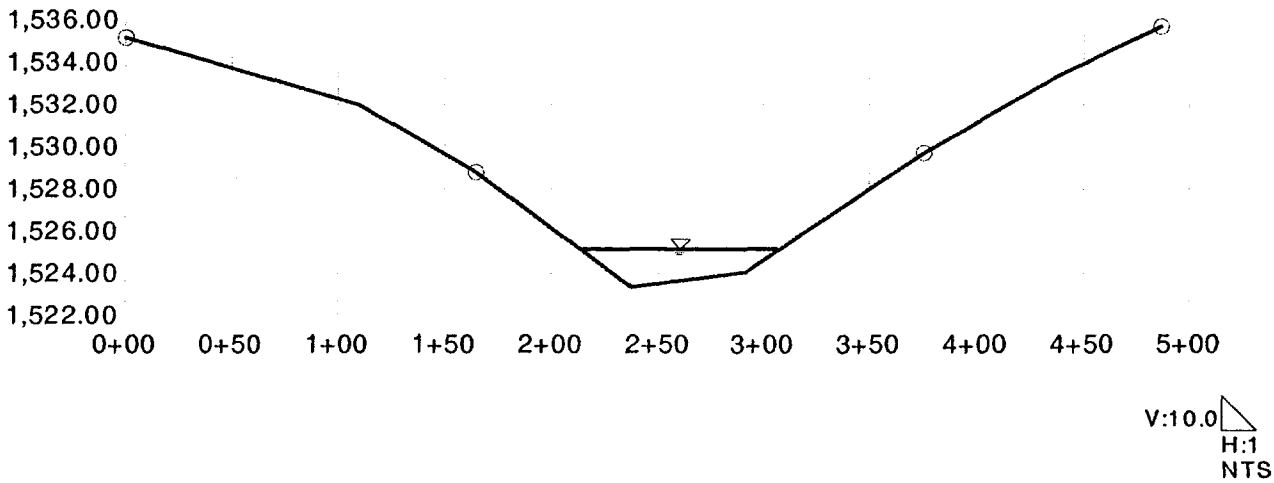
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,535.20
1+10	1,532.00
1+65	1,528.80
2+38	1,523.30
2+91	1,524.10
3+75	1,529.70
4+39	1,533.40
4+86	1,535.70

Basin B - Route Reach 2R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin B - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.050	
Slope	0.010500	ft/ft
Water Surface Elev.	1,525.12	ft
Elevation Range	23.30 to 1,535.70	
Discharge	349.00	cfs



Basin B - Route Reach 3R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin B - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	010200	ft/ft
Discharg	254.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,567.08	ft
Elevation Range	35.50 to 1,570.00	
Flow Area	94.1	ft²
Wetted Perimeter	110.22	ft
Top Width	110.17	ft
Actual Depth	1.58	ft
Critical Elevation	1,566.70	ft
Critical Slope	0.042425	ft/ft
Velocity	2.70	ft/s
Velocity Head	0.11	ft
Specific Energy	1,567.19	ft
Froude Number	0.52	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+82	0.070
1+82	3+53	0.050
3+53	6+51	0.070

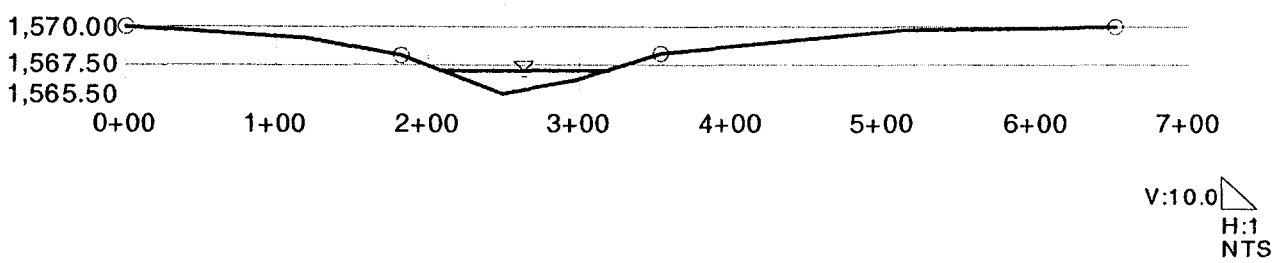
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,570.00
1+20	1,569.20
1+82	1,568.10
2+48	1,565.50
2+97	1,566.40
3+53	1,568.20
5+07	1,569.70
6+51	1,570.00

Basin B - Route Reach 3R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin B - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.010200	ft/ft
Water Surface Elev	1,567.08	ft
Elevation Range	35.50 to 1,570.00	
Discharge	254.00	cfs



Basin B - Route Reach 4R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin B - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	003000	ft/ft
Discharg	258.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.055	
Water Surface Elev	1,578.85	ft
Elevation Range	77.74 to 1,578.97	
Flow Area	232.3	ft²
Wetted Perimeter	356.05	ft
Top Width	356.04	ft
Actual Depth	1.11	ft
Critical Elevation	1,578.34	ft
Critical Slope	0.064141	ft/ft
Velocity	1.11	ft/s
Velocity Head	0.02	ft
Specific Energy	1,578.87	ft
Froude Number	0.24	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	0+41	0.070
0+41	1+99	0.050
1+99	3+80	0.070

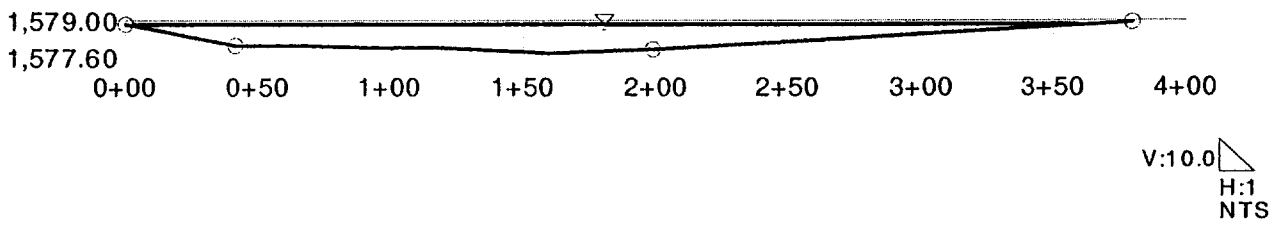
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,578.90
0+41	1,578.09
0+68	1,578.04
0+90	1,578.00
1+17	1,577.99
1+60	1,577.74
1+99	1,577.93
3+80	1,578.97

Basin B - Route Reach 4R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin B - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.055	
Slope	0.003000	ft/ft
Water Surface Elev.	1,578.85	ft
Elevation Range	77.74 to 1,578.97	
Discharge	258.00	cfs



Basin B - Route Reach 5R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin B - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	008000	ft/ft
Discharg	60.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.059	
Water Surface Elev	1,592.26	ft
Elevation Range	92.00 to 1,592.50	
Flow Area	80.6	ft²
Wetted Perimeter	424.40	ft
Top Width	424.40	ft
Actual Depth	0.26	ft
Critical Elevation	1,592.13	ft
Critical Slope	0.107559	ft/ft
Velocity	0.74	ft/s
Velocity Head	0.01	ft
Specific Energy	1,592.27	ft
Froude Number	0.30	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+12	0.070
2+12	4+77	0.050
4+77	6+19	0.070

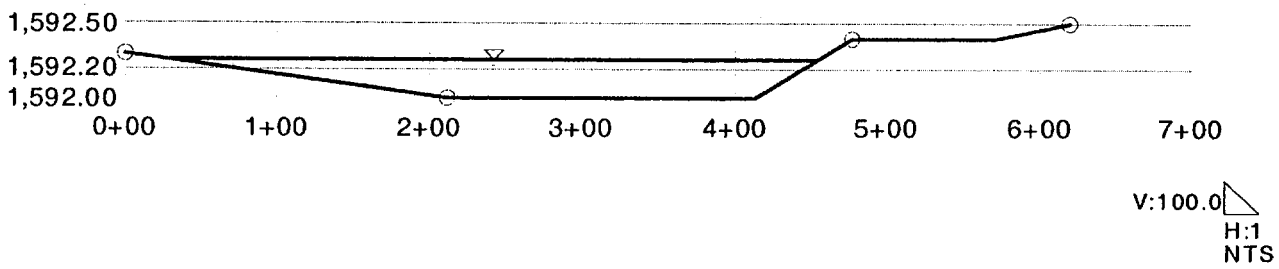
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,592.30
2+12	1,592.00
2+55	1,592.00
2+87	1,592.00
4+13	1,592.00
4+77	1,592.40
5+71	1,592.40
6+19	1,592.50

Basin B - Route Reach 5R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin B - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.059	
Slope	0.008000	ft/ft
Water Surface Elev.	1,592.26	ft
Elevation Range	92.00 to 1,592.50	
Discharge	60.00	cfs



Basin C - Route Reach 2R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin C - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	011000	ft/ft
Discharg	310.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.052	
Water Surface Elev	1,512.54	ft
Elevation Range	11.30 to 1,520.54	
Flow Area	133.7	ft²
Wetted Perimeter	197.61	ft
Top Width	197.58	ft
Actual Depth	1.24	ft
Critical Elevation	1,512.27	ft
Critical Slope	0.051425	ft/ft
Velocity	2.32	ft/s
Velocity Head	0.08	ft
Specific Energy	1,512.62	ft
Froude Number	0.50	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+18	0.070
1+18	2+99	0.050
2+99	4+34	0.070

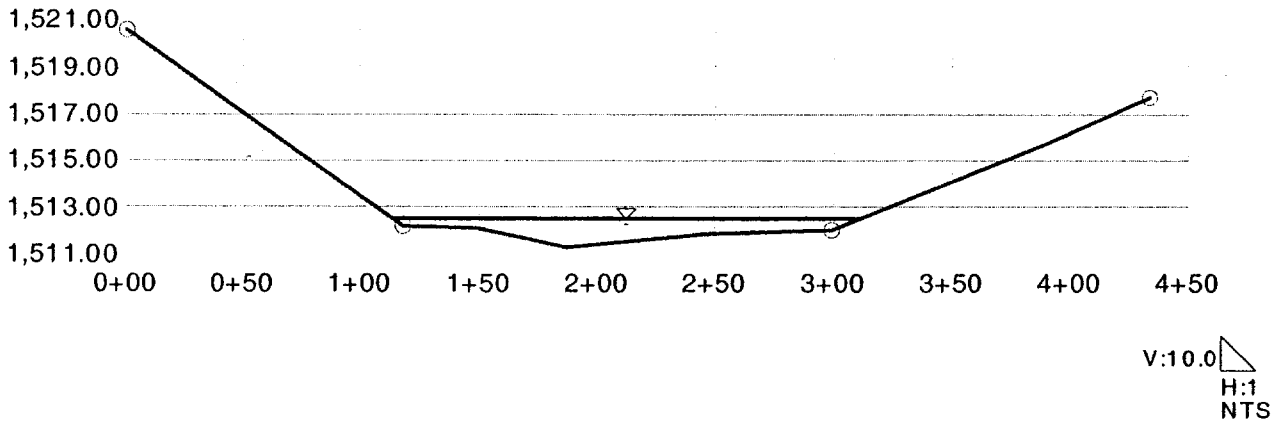
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,520.54
1+18	1,512.23
1+49	1,512.13
1+87	1,511.30
2+46	1,511.85
2+99	1,512.05
3+90	1,515.70
4+34	1,517.70

Basin C - Route Reach 2R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin C - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.052	
Slope	0.011000	ft/ft
Water Surface Elev	1,512.54	ft
Elevation Range	11.30 to 1,520.54	
Discharge	310.00	cfs



Basin C - Route Reach 3R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin C - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	013400	ft/ft
Discharg	81.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.054	
Water Surface Elev	1,545.65	ft
Elevation Range	15.00 to 1,548.40	
Flow Area	49.9	ft²
Wetted Perimeter	139.02	ft
Top Width	139.01	ft
Actual Depth	0.65	ft
Critical Elevation	1,545.49	ft
Critical Slope	0.066645	ft/ft
Velocity	1.62	ft/s
Velocity Head	0.04	ft
Specific Energy	1,545.69	ft
Froude Number	0.48	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+14	0.070
1+14	2+25	0.050
2+25	3+90	0.070

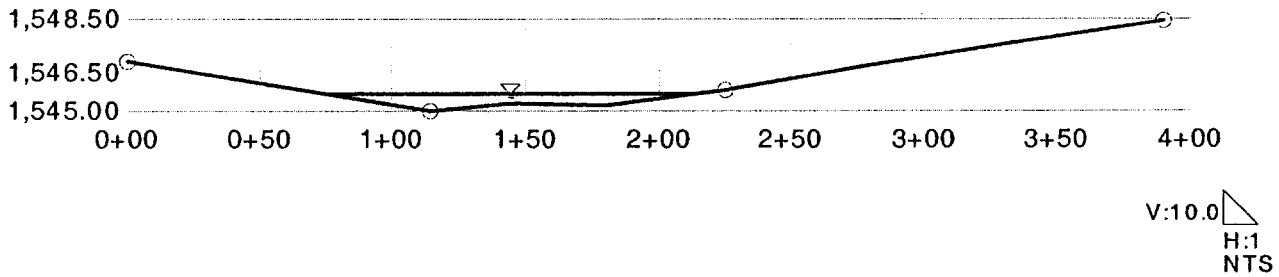
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,546.90
1+14	1,545.00
1+44	1,545.30
1+81	1,545.20
2+25	1,545.80
2+80	1,546.70
3+35	1,547.60
3+90	1,548.40

Basin C - Route Reach 3R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin C - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.054	
Slope	0.013400	ft/ft
Water Surface Elev	1,545.65	ft
Elevation Range	45.00 to 1,548.40	
Discharge	81.00	cfs



Basin D - Route Reach 2R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	011500	ft/ft
Discharg	,077.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.055	
Water Surface Elev	1,552.70	ft
Elevation Range	49.80 to 1,554.60	
Flow Area	281.9	ft²
Wetted Perimeter	188.64	ft
Top Width	188.54	ft
Actual Depth	2.90	ft
Critical Elevation	1,552.06	ft
Critical Slope	0.040874	ft/ft
Velocity	3.82	ft/s
Velocity Head	0.23	ft
Specific Energy	1,552.93	ft
Froude Number	0.55	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+07	0.070
1+07	2+04	0.050
2+04	2+96	0.070

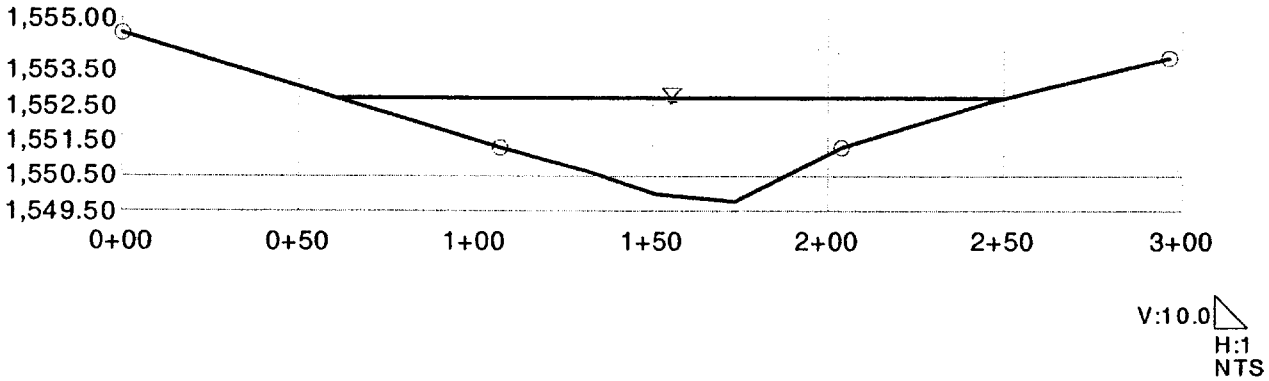
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,554.60
1+07	1,551.30
1+33	1,550.60
1+51	1,550.00
1+74	1,549.80
2+04	1,551.30
2+46	1,552.60
2+96	1,553.90

Basin D - Route Reach 2R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.055	
Slope	0.011500	ft/ft
Water Surface Elev	1,552.70	ft
Elevation Range	49.80 to 1,554.60	
Discharge	1,077.00	cfs



Basin D - Route Reach 3R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	007700	ft/ft
Discharg	,079.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,536.65	ft
Elevation Range	35.00 to 1,549.00	
Flow Area	359.0	ft²
Wetted Perimeter	290.19	ft
Top Width	290.15	ft
Actual Depth	1.65	ft
Critical Elevation	1,536.08	ft
Critical Slope	0.038410	ft/ft
Velocity	3.01	ft/s
Velocity Head	0.14	ft
Specific Energy	1,536.79	ft
Froude Number	0.48	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+33	0.070
1+33	4+73	0.050
4+73	6+25	0.070

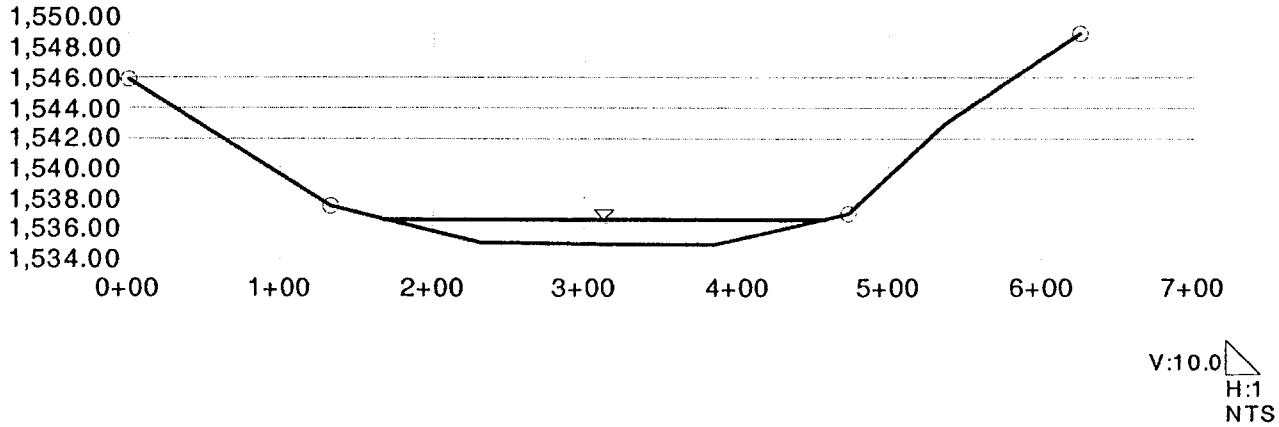
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,545.90
1+33	1,537.50
2+31	1,535.10
3+29	1,535.00
3+85	1,535.00
4+73	1,537.00
5+36	1,543.00
6+25	1,549.00

Basin D - Route Reach 3R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.007700	ft/ft
Water Surface Elev	1,536.65	ft
Elevation Range	35.00 to 1,549.00	
Discharge	1,079.00	cfs



Basin D - Route Reach 4R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	011400	ft/ft
Discharg	,052.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,548.69	ft
Elevation Range	16.90 to 1,561.50	
Flow Area	268.7	ft²
Wetted Perimeter	196.06	ft
Top Width	195.95	ft
Actual Depth	1.79	ft
Critical Elevation	1,548.23	ft
Critical Slope	0.036122	ft/ft
Velocity	3.92	ft/s
Velocity Head	0.24	ft
Specific Energy	1,548.92	ft
Froude Number	0.59	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+68	0.070
1+68	4+24	0.050
4+24	4+43	0.070

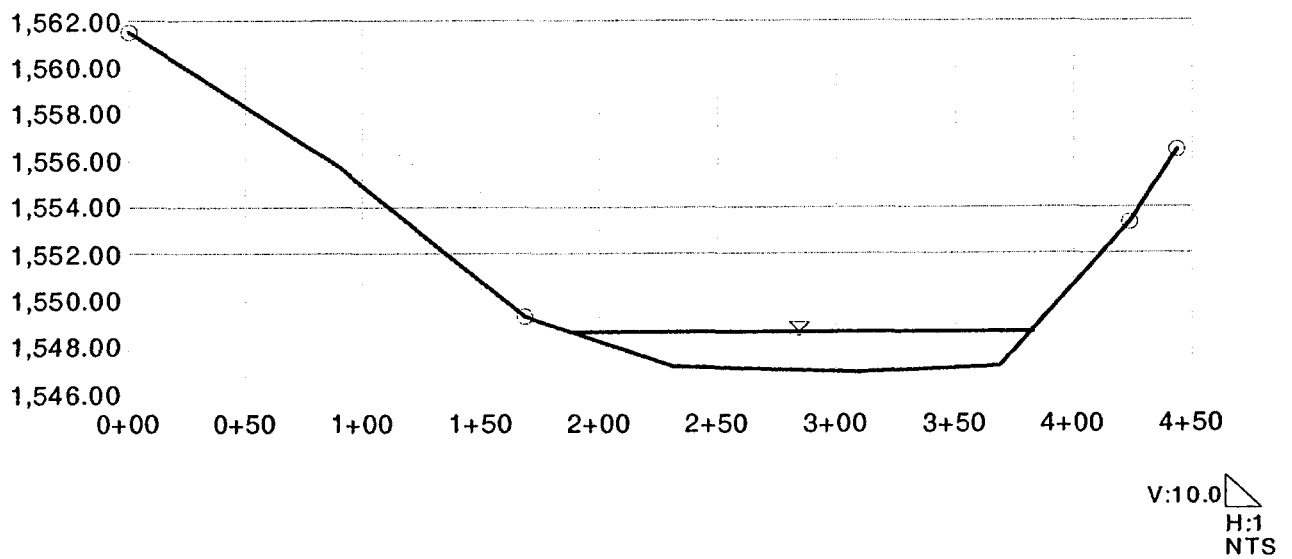
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,561.50
0+90	1,555.70
1+68	1,549.30
2+31	1,547.20
3+09	1,546.90
3+69	1,547.20
4+24	1,553.30
4+43	1,556.40

Basin D - Route Reach 4R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.011400	ft/ft
Water Surface Elev.	1,548.69	ft
Elevation Range	16.90 to 1,561.50	
Discharge	1,052.00	cfs



Basin D - Route Reach 5R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	005700	ft/ft
Discharg	,478.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,563.14	ft
Elevation Range	59.50 to 1,578.00	
Flow Area	406.2	ft²
Wetted Perimeter	196.75	ft
Top Width	196.50	ft
Actual Depth	3.64	ft
Critical Elevation	1,562.16	ft
Critical Slope	0.033180	ft/ft
Velocity	3.64	ft/s
Velocity Head	0.21	ft
Specific Energy	1,563.34	ft
Froude Number	0.45	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+16	0.070
2+16	5+09	0.050
5+09	6+70	0.070

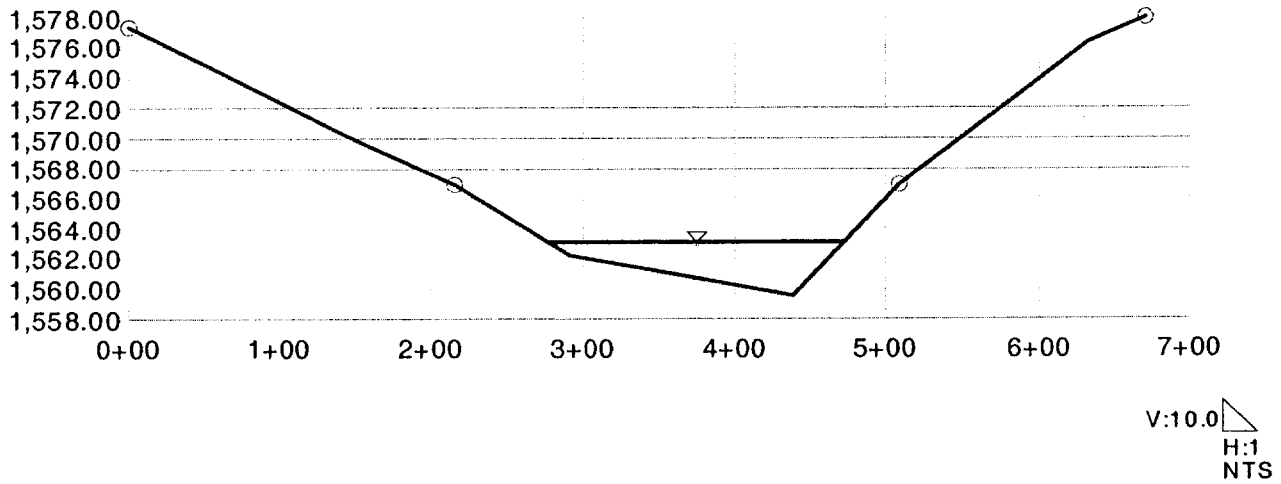
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,577.40
1+45	1,570.10
2+16	1,567.00
2+91	1,562.20
4+38	1,559.50
5+09	1,566.90
6+32	1,576.40
6+70	1,578.00

Basin D - Route Reach 5R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.050	
Slope	0.005700	ft/ft
Water Surface Elev	1,563.14	ft
Elevation Range	59.50 to 1,578.00	
Discharge	1,478.00	cfs



Basin D - Route Reach 6R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	011000	ft/ft
Discharg	558.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.053	
Water Surface Elev	1,588.73	ft
Elevation Range	36.70 to 1,598.20	
Flow Area	166.6	ft²
Wetted Perimeter	137.21	ft
Top Width	137.13	ft
Actual Depth	2.03	ft
Critical Elevation	1,588.25	ft
Critical Slope	0.042675	ft/ft
Velocity	3.35	ft/s
Velocity Head	0.17	ft
Specific Energy	1,588.90	ft
Froude Number	0.54	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+41	0.070
1+41	2+88	0.050
2+88	4+36	0.070

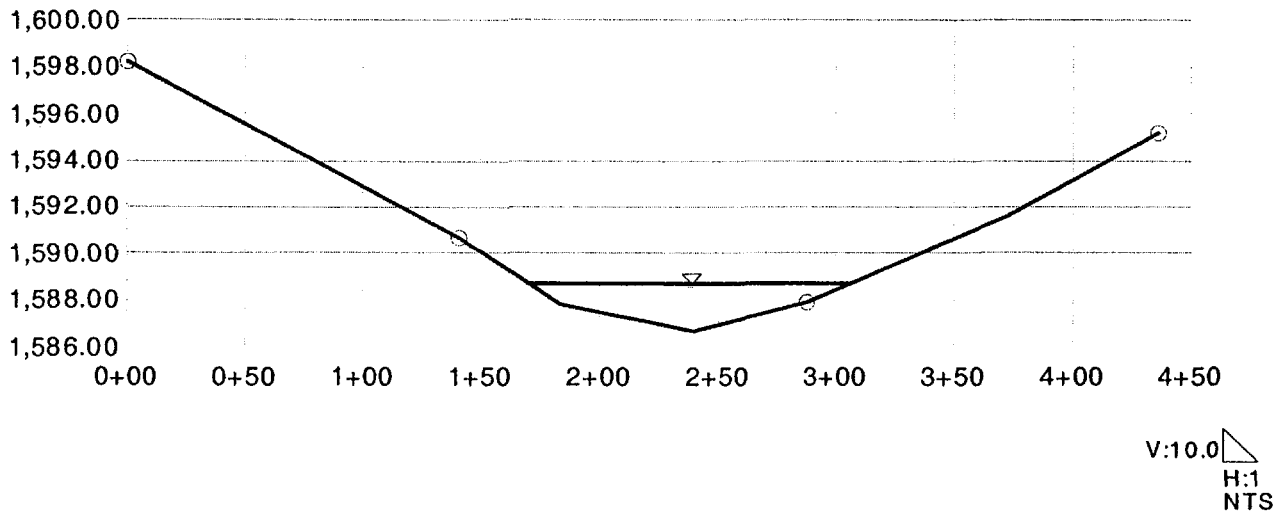
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,598.20
0+98	1,593.00
1+41	1,590.70
1+83	1,587.80
2+39	1,586.70
2+88	1,587.90
3+72	1,591.60
4+36	1,595.20

Basin D - Route Reach 6R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.053	
Slope	0.011000	ft/ft
Water Surface Elev	1,588.73	ft
Elevation Range	36.70 to 1,598.20	
Discharge	558.00	cfs



Basin D - Route Reach 7R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	011800	ft/ft
Discharg	547.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.054	
Water Surface Elev	1,611.97	ft
Elevation Range	10.16 to 1,620.00	
Flow Area	157.5	ft²
Wetted Perimeter	127.02	ft
Top Width	126.93	ft
Actual Depth	1.81	ft
Critical Elevation	1,611.49	ft
Critical Slope	0.043045	ft/ft
Velocity	3.47	ft/s
Velocity Head	0.19	ft
Specific Energy	1,612.16	ft
Froude Number	0.55	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+34	0.070
1+34	2+43	0.050
2+43	3+34	0.070

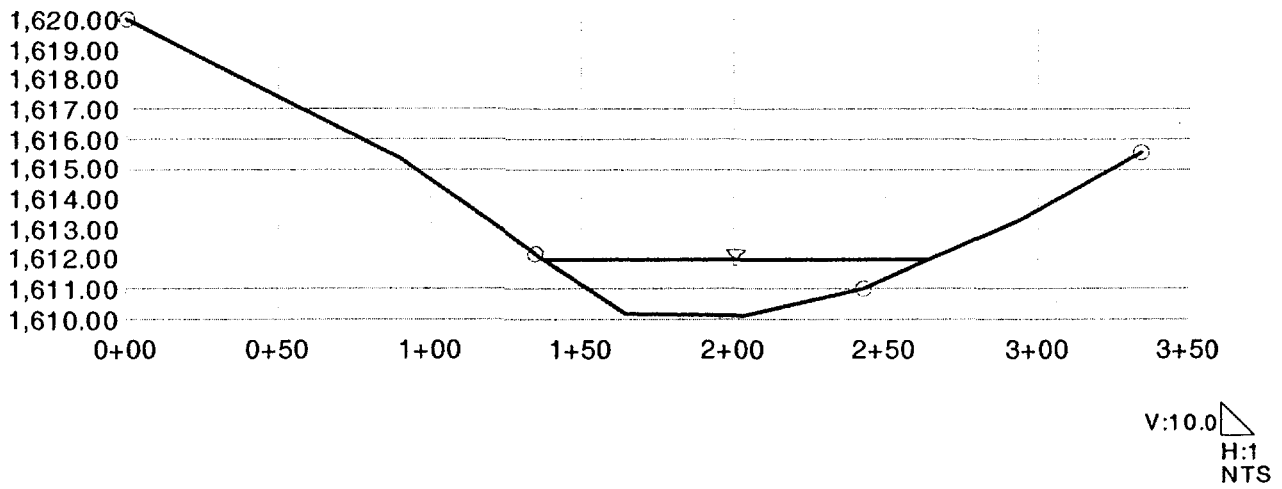
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,620.00
0+90	1,615.38
1+34	1,612.17
1+65	1,610.23
2+04	1,610.16
2+43	1,611.02
2+95	1,613.33
3+34	1,615.56

Basin D - Route Reach 7R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.054	
Slope	0.011800	ft/ft
Water Surface Elev	1,611.97	ft
Elevation Range	10.16 to 1,620.00	
Discharge	547.00	cfs



Basin D - Route Reach 8R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	008300	ft/ft
Discharg	522.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,645.11	ft
Elevation Range	13.00 to 1,652.90	
Flow Area	175.3	ft²
Wetted Perimeter	151.93	ft
Top Width	151.87	ft
Actual Depth	2.11	ft
Critical Elevation	1,644.57	ft
Critical Slope	0.038841	ft/ft
Velocity	2.98	ft/s
Velocity Head	0.14	ft
Specific Energy	1,645.25	ft
Froude Number	0.49	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+40	0.070
1+40	3+71	0.050
3+71	5+14	0.070

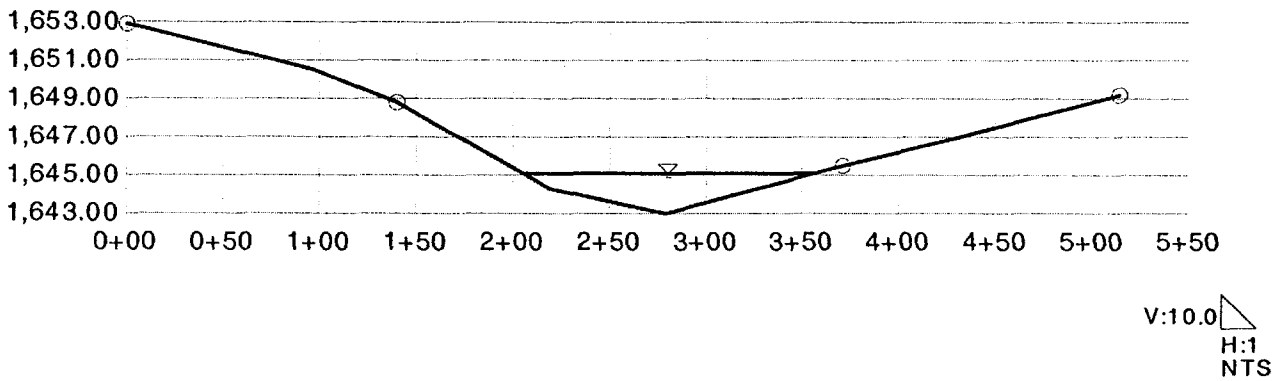
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,652.90
0+97	1,650.50
1+40	1,648.80
2+19	1,644.30
2+79	1,643.00
3+71	1,645.50
4+31	1,647.00
5+14	1,649.20

Basin D - Route Reach 8R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.008300	ft/ft
Water Surface Elev	1,645.11	ft
Elevation Range	13.00 to 1,652.90	
Discharge	522.00	cfs



Basin D - Route Reach 9R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	010000	ft/ft
Discharg	949.00	cfs

Options	
Current Roughness Metho	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,578.75	ft
Elevation Range	76.30 to 1,587.50	
Flow Area	237.5	ft²
Wetted Perimeter	152.38	ft
Top Width	152.25	ft
Actual Depth	2.45	ft
Critical Elevation	1,578.19	ft
Critical Slope	0.034796	ft/ft
Velocity	4.00	ft/s
Velocity Head	0.25	ft
Specific Energy	1,579.00	ft
Froude Number	0.56	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+01	0.070
1+01	2+99	0.050
2+99	3+79	0.070

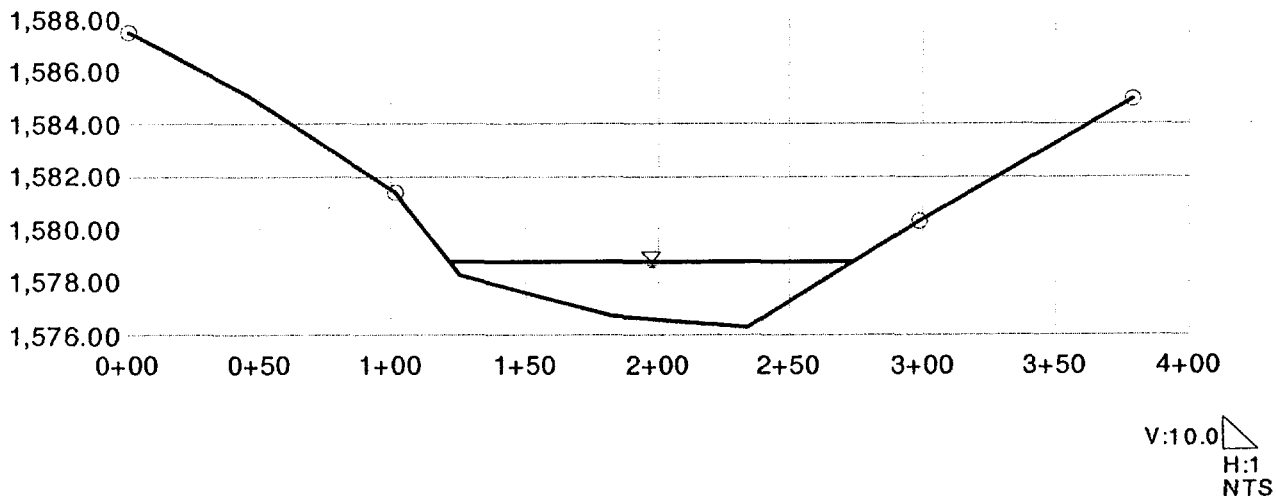
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,587.50
0+45	1,585.10
1+01	1,581.40
1+25	1,578.30
1+82	1,576.70
2+34	1,576.30
2+99	1,580.30
3+79	1,585.00

Basin D - Route Reach 9R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.010000	ft/ft
Water Surface Elev	1,578.75	ft
Elevation Range	76.30 to 1,587.50	
Discharge	949.00	cfs



Basin D - Route Reach 10R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	013200	ft/ft
Discharg	435.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev.	1,592.11	ft
Elevation Range	0.30 to 1,597.20	
Flow Area	122.7	ft²
Wetted Perimeter	115.98	ft
Top Width	115.89	ft
Actual Depth	1.81	ft
Critical Elevation	1,591.77	ft
Critical Slope	0.039090	ft/ft
Velocity	3.55	ft/s
Velocity Head	0.20	ft
Specific Energy	1,592.31	ft
Froude Number	0.61	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	0+71	0.070
0+71	2+27	0.050
2+27	2+93	0.070

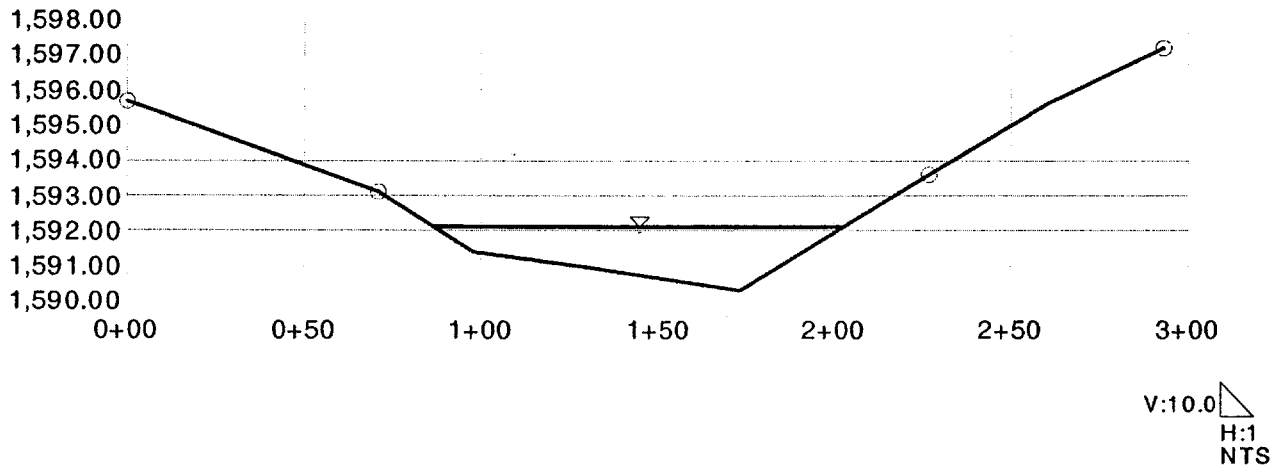
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,595.70
0+71	1,593.10
0+98	1,591.40
1+30	1,591.00
1+73	1,590.30
2+27	1,593.60
2+60	1,595.60
2+93	1,597.20

Basin D - Route Reach 10R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.013200	ft/ft
Water Surface Elev	1,592.11	ft
Elevation Range	90.30 to 1,597.20	
Discharge	435.00	cfs



Basin D - Route Reach 11R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	009900	ft/ft
Discharg	456.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,615.92	ft
Elevation Range	14.80 to 1,620.10	
Flow Area	183.2	ft²
Wetted Perimeter	237.17	ft
Top Width	237.15	ft
Actual Depth	1.12	ft
Critical Elevation	1,615.58	ft
Critical Slope	0.044559	ft/ft
Velocity	2.49	ft/s
Velocity Head	0.10	ft
Specific Energy	1,616.02	ft
Froude Number	0.50	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+70	0.070
1+70	5+20	0.050
5+20	6+47	0.070

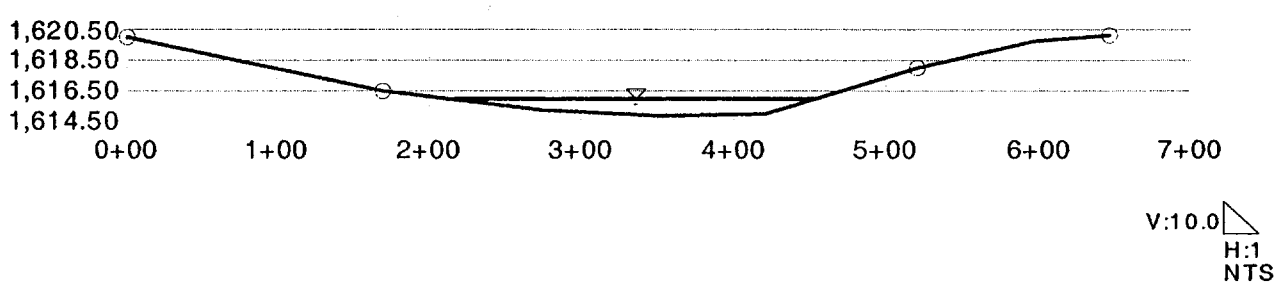
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,620.00
1+70	1,616.50
2+74	1,615.20
3+50	1,614.80
4+21	1,614.90
5+20	1,618.00
5+96	1,619.80
6+47	1,620.10

Basin D - Route Reach 11R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.009900	ft/ft
Water Surface Elev	1,615.92	ft
Elevation Range	14.80 to 1,620.10	
Discharge	456.00	cfs



Basin D - Route Reach 12R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	014400	ft/ft
Discharg	557.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.052	
Water Surface Elev.	1,591.47	ft
Elevation Range	38.70 to 1,595.50	
Flow Area	136.8	ft²
Wetted Perimeter	106.42	ft
Top Width	106.20	ft
Actual Depth	2.77	ft
Critical Elevation	1,591.04	ft
Critical Slope	0.038142	ft/ft
Velocity	4.07	ft/s
Velocity Head	0.26	ft
Specific Energy	1,591.73	ft
Froude Number	0.63	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+39	0.070
1+39	2+49	0.050
2+49	3+01	0.070

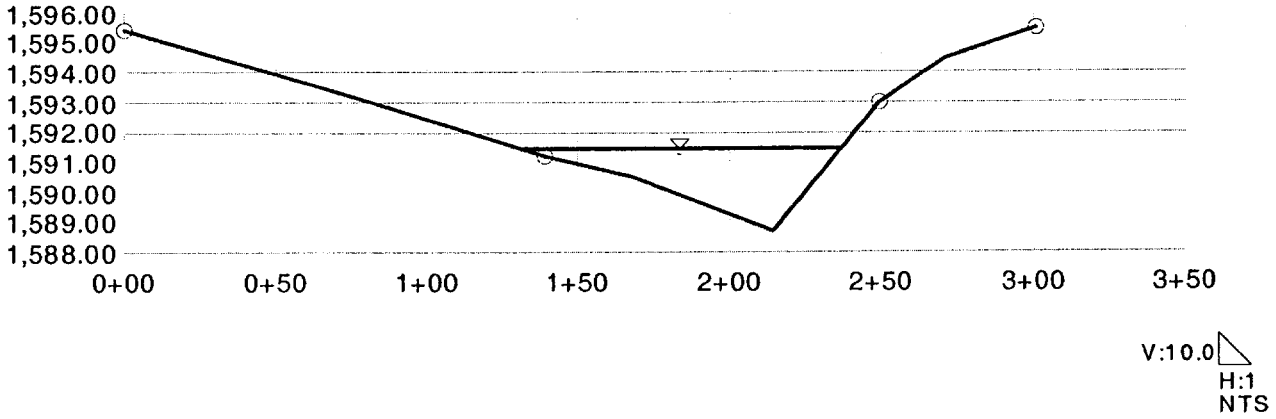
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,595.40
0+76	1,593.20
1+39	1,591.20
1+68	1,590.50
2+14	1,588.70
2+49	1,593.00
2+71	1,594.50
3+01	1,595.50

Basin D - Route Reach 12R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.052	
Slope	0.014400	ft/ft
Water Surface Elev	1,591.47	ft
Elevation Range	38.70 to 1,595.50	
Discharge	557.00	cfs



Basin D - Route Reach 13R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	010700	ft/ft
Discharg	456.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,611.76	ft
Elevation Range	9.80 to 1,615.90	
Flow Area	146.4	ft²
Wetted Perimeter	143.43	ft
Top Width	143.37	ft
Actual Depth	1.96	ft
Critical Elevation	1,611.34	ft
Critical Slope	0.039637	ft/ft
Velocity	3.12	ft/s
Velocity Head	0.15	ft
Specific Energy	1,611.91	ft
Froude Number	0.54	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+37	0.070
1+37	3+63	0.050
3+63	4+59	0.070

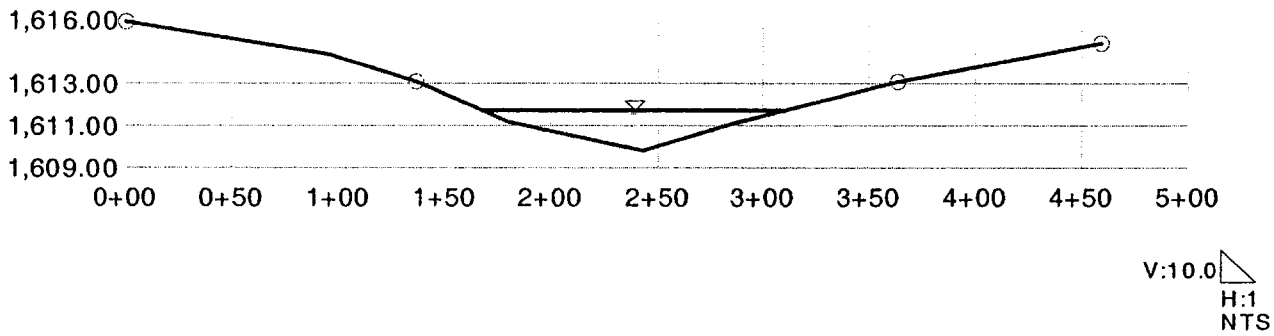
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,615.90
0+96	1,614.40
1+37	1,613.10
1+80	1,611.20
2+43	1,609.80
2+85	1,611.10
3+63	1,613.10
4+59	1,614.90

Basin D - Route Reach 13R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin D - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.010700	ft/ft
Water Surface Elev	1,611.76	ft
Elevation Range	)9.80 to 1,615.90	
Discharge	456.00	cfs



Basin E - Route Reach 2R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin E - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	008500	ft/ft
Discharg	378.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.052	
Water Surface Elev	1,560.57	ft
Elevation Range	59.35 to 1,563.27	
Flow Area	170.6	ft²
Wetted Perimeter	224.00	ft
Top Width	223.98	ft
Actual Depth	1.22	ft
Critical Elevation	1,560.21	ft
Critical Slope	0.049226	ft/ft
Velocity	2.22	ft/s
Velocity Head	0.08	ft
Specific Energy	1,560.64	ft
Froude Number	0.45	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+62	0.070
1+62	3+53	0.050
3+53	4+44	0.070

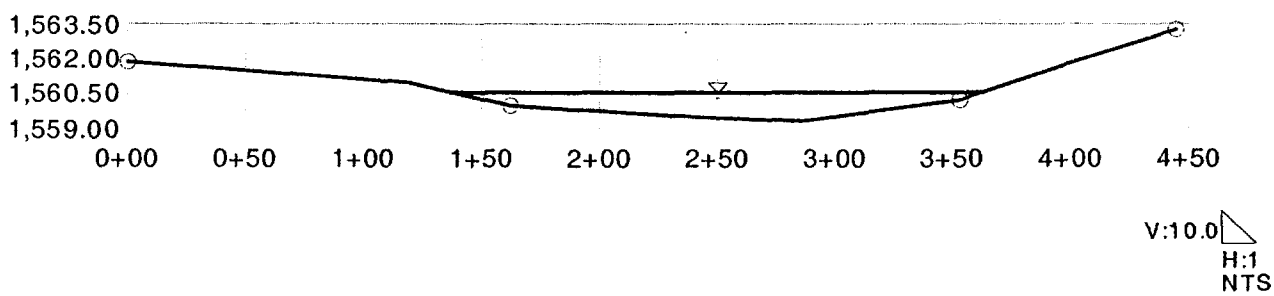
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,561.87
1+19	1,561.00
1+62	1,560.02
2+43	1,559.54
2+86	1,559.35
3+53	1,560.27
4+01	1,561.88
4+44	1,563.27

Basin E - Route Reach 2R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin E - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.052	
Slope	0.008500	ft/ft
Water Surface Elev	1,560.57	ft
Elevation Range	59.35 to 1,563.27	
Discharge	378.00	cfs



Basin E - Route Reach 3R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin E - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	009900	ft/ft
Discharg	119.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,588.68	ft
Elevation Range	37.60 to 1,592.20	
Flow Area	55.6	ft²
Wetted Perimeter	90.37	ft
Top Width	90.34	ft
Actual Depth	1.08	ft
Critical Elevation	1,588.38	ft
Critical Slope	0.047779	ft/ft
Velocity	2.14	ft/s
Velocity Head	0.07	ft
Specific Energy	1,588.75	ft
Froude Number	0.48	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+98	0.070
1+98	3+61	0.050
3+61	4+90	0.070

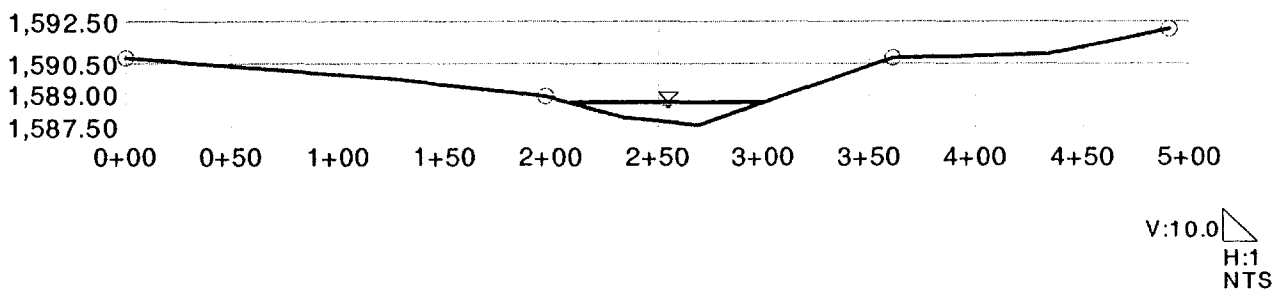
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,590.80
1+26	1,589.80
1+98	1,589.00
2+34	1,588.00
2+69	1,587.60
3+61	1,590.80
4+33	1,591.00
4+90	1,592.20

Basin E - Route Reach 3R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin E - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.050	
Slope	0.009900	ft/ft
Water Surface Elev.	1,588.68	ft
Elevation Range	37.60 to 1,592.20	
Discharge	119.00	cfs



Basin F - Route Reach 2R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin F - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	008400	ft/ft
Discharg	471.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,586.52	ft
Elevation Range	35.00 to 1,592.10	
Flow Area	178.6	ft²
Wetted Perimeter	187.49	ft
Top Width	187.45	ft
Actual Depth	1.52	ft
Critical Elevation	1,586.10	ft
Critical Slope	0.042610	ft/ft
Velocity	2.64	ft/s
Velocity Head	0.11	ft
Specific Energy	1,586.63	ft
Froude Number	0.48	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	0+97	0.070
0+97	3+81	0.050
3+81	4+38	0.070

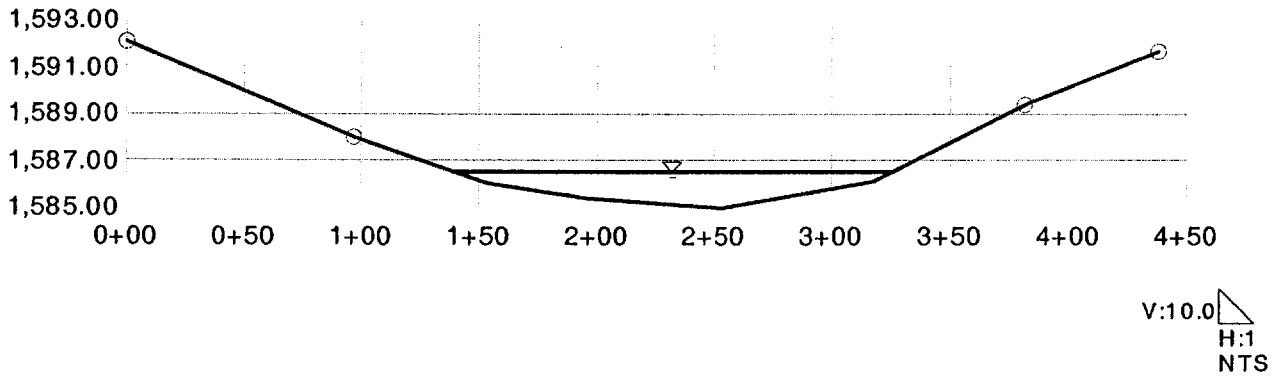
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,592.10
0+97	1,588.00
1+53	1,586.00
1+96	1,585.40
2+53	1,585.00
3+18	1,586.10
3+81	1,589.40
4+38	1,591.70

Basin F - Route Reach 2R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin F - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.008400	ft/ft
Water Surface Elev	1,586.52	ft
Elevation Range	35.00 to 1,592.10	
Discharge	471.00	cfs



Basin F - Route Reach 3R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin F - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	009500	ft/ft
Discharg	283.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.052	
Water Surface Elev	1,623.13	ft
Elevation Range	21.92 to 1,631.07	
Flow Area	132.3	ft²
Wetted Perimeter	198.88	ft
Top Width	198.85	ft
Actual Depth	1.21	ft
Critical Elevation	1,622.84	ft
Critical Slope	0.051462	ft/ft
Velocity	2.14	ft/s
Velocity Head	0.07	ft
Specific Energy	1,623.21	ft
Froude Number	0.46	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+33	0.070
1+33	3+49	0.050
3+49	6+20	0.070

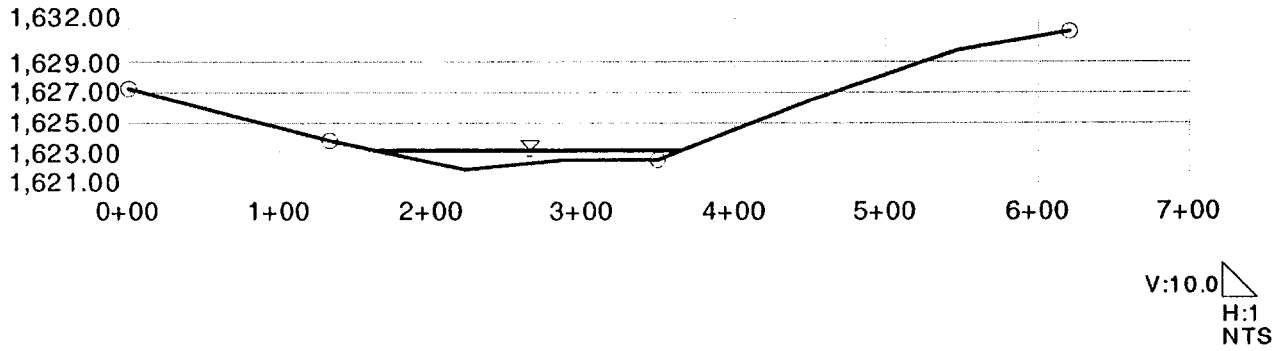
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,627.21
1+33	1,623.83
2+22	1,621.92
2+86	1,622.56
3+49	1,622.56
4+50	1,626.47
5+46	1,629.82
6+20	1,631.07

Basin F - Route Reach 3R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin F - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.052	
Slope	0.009500	ft/ft
Water Surface Elev	1,623.13	ft
Elevation Range	21.92 to 1,631.07	
Discharge	283.00	cfs



Basin F - Route Reach 4R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin F - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	010500	ft/ft
Discharg	273.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,657.93	ft
Elevation Range	56.40 to 1,664.30	
Flow Area	95.7	ft²
Wetted Perimeter	105.49	ft
Top Width	105.42	ft
Actual Depth	1.53	ft
Critical Elevation	1,657.55	ft
Critical Slope	0.041718	ft/ft
Velocity	2.85	ft/s
Velocity Head	0.13	ft
Specific Energy	1,658.06	ft
Froude Number	0.53	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+15	0.070
1+15	2+81	0.050
2+81	4+24	0.070

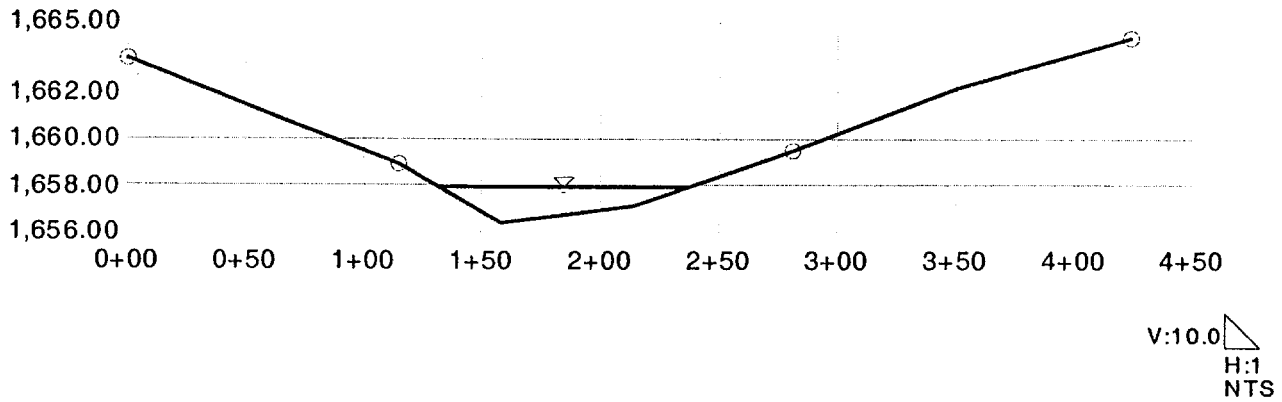
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,663.40
0+64	1,660.90
1+15	1,658.90
1+58	1,656.40
2+14	1,657.10
2+81	1,659.50
3+51	1,662.20
4+24	1,664.30

Basin F - Route Reach 4R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin F - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.010500	ft/ft
Water Surface Elev	1,657.93	ft
Elevation Range	56.40 to 1,664.30	
Discharge	273.00	cfs



Basin G - Route Reach 2R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin G - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	012200	ft/ft
Discharg	150.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.051	
Water Surface Elev.	1,635.21	ft
Elevation Range	34.48 to 1,640.00	
Flow Area	78.6	ft²
Wetted Perimeter	173.92	ft
Top Width	173.91	ft
Actual Depth	0.73	ft
Critical Elevation	1,635.01	ft
Critical Slope	0.054614	ft/ft
Velocity	1.91	ft/s
Velocity Head	0.06	ft
Specific Energy	1,635.27	ft
Froude Number	0.50	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+68	0.070
2+68	4+69	0.050
4+69	6+61	0.070

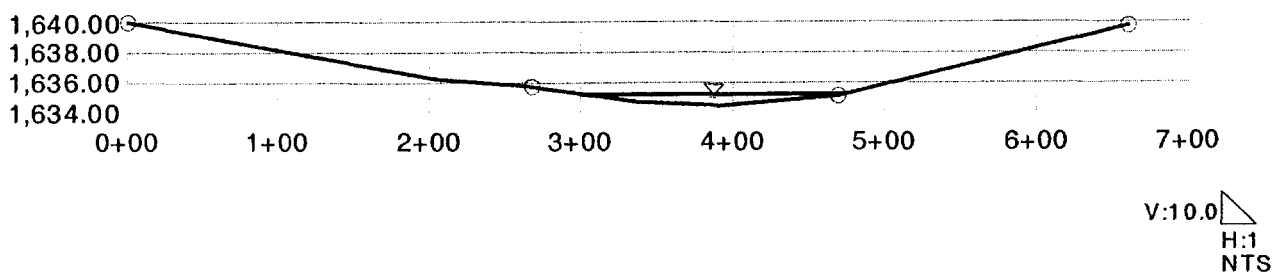
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,640.00
2+05	1,636.19
2+68	1,635.69
3+36	1,634.66
3+92	1,634.48
4+69	1,635.09
5+72	1,637.59
6+61	1,639.75

Basin G - Route Reach 2R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin G - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.051	
Slope	0.012200	ft/ft
Water Surface Elev	1,635.21	ft
Elevation Range	34.48 to 1,640.00	
Discharge	150.00	cfs



Basin H - Route Reach 2R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin H - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	014000	ft/ft
Discharg	373.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev.	1,642.64	ft
Elevation Range	10.86 to 1,660.15	
Flow Area	108.8	ft²
Wetted Perimeter	112.94	ft
Top Width	112.82	ft
Actual Depth	1.78	ft
Critical Elevation	1,642.34	ft
Critical Slope	0.040311	ft/ft
Velocity	3.43	ft/s
Velocity Head	0.18	ft
Specific Energy	1,642.82	ft
Froude Number	0.62	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+60	0.070
1+60	4+18	0.050
4+18	5+43	0.070

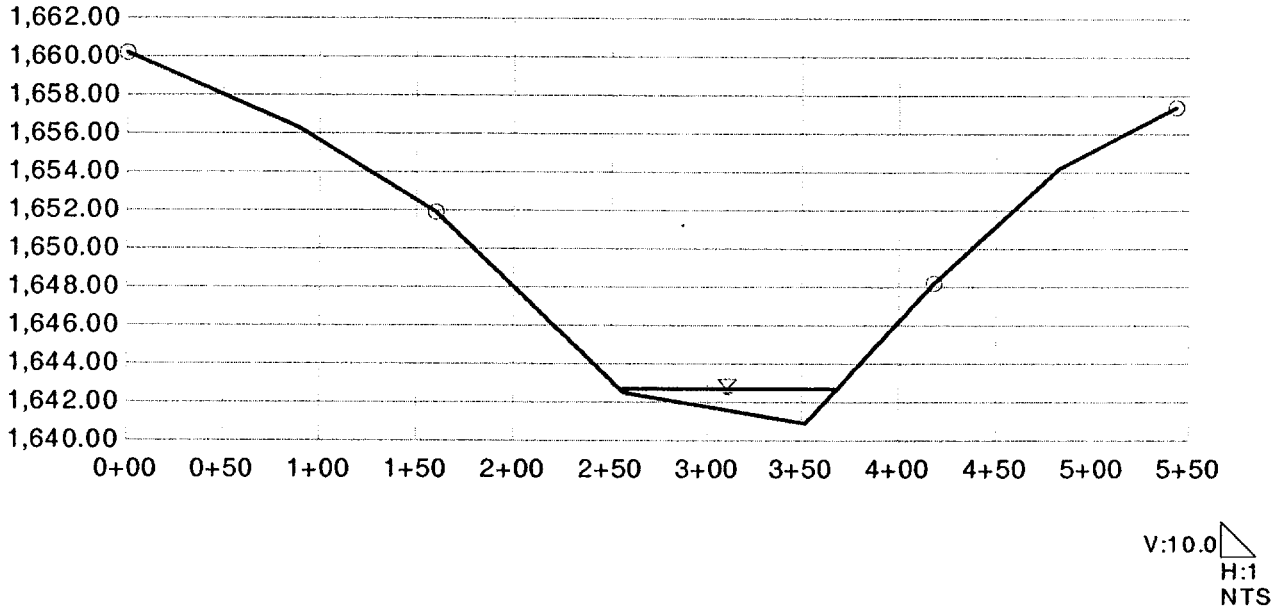
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,660.15
0+89	1,656.24
1+60	1,651.92
2+57	1,642.42
3+51	1,640.86
4+18	1,648.20
4+81	1,654.13
5+43	1,657.36

Basin H - Route Reach 2R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin H - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.014000	ft/ft
Water Surface Elev	1,642.64	ft
Elevation Range	10.86 to 1,660.15	
Discharge	373.00	cfs



Basin I - Route Reach 2R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin I - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	012100	ft/ft
Discharg	376.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,665.36	ft
Elevation Range	3.50 to 1,680.60	
Flow Area	120.8	ft²
Wetted Perimeter	129.92	ft
Top Width	129.86	ft
Actual Depth	1.86	ft
Critical Elevation	1,664.98	ft
Critical Slope	0.040259	ft/ft
Velocity	3.11	ft/s
Velocity Head	0.15	ft
Specific Energy	1,665.51	ft
Froude Number	0.57	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	3+05	0.070
3+05	7+16	0.050
7+16	10+18	0.070

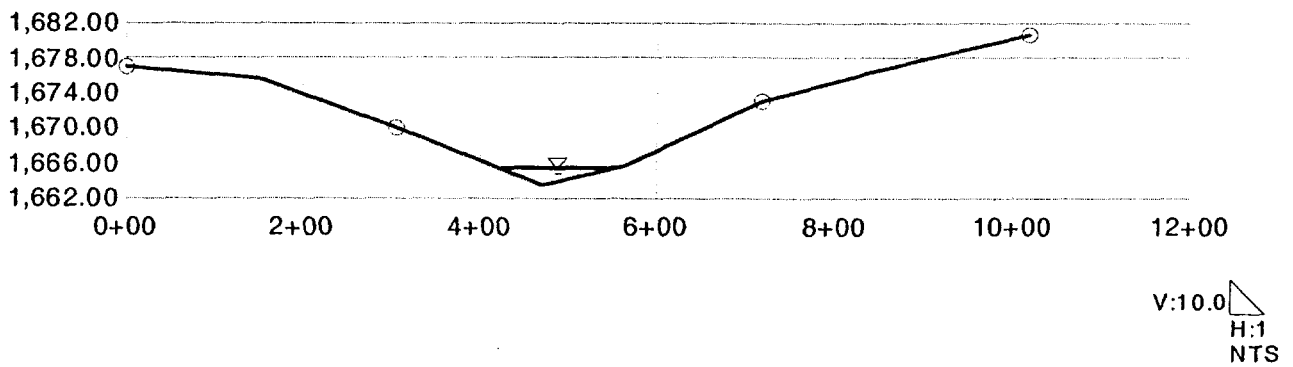
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,677.00
1+50	1,675.60
3+05	1,670.00
4+71	1,663.50
5+64	1,665.60
7+16	1,673.10
8+36	1,676.30
10+18	1,680.60

Basin I - Route Reach 2R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin I - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.012100	ft/ft
Water Surface Elev	1,665.36	ft
Elevation Range	53.50 to 1,680.60	
Discharge	376.00	cfs



Basin I - Route Reach 3R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin I - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	008900	ft/ft
Discharg	473.00	cfs

Options	
Current Roughness Methc	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.053	
Water Surface Elev.	1,699.63	ft
Elevation Range	98.66 to 1,703.25	
Flow Area	220.2	ft²
Wetted Perimeter	302.89	ft
Top Width	302.85	ft
Actual Depth	0.97	ft
Critical Elevation	1,699.31	ft
Critical Slope	0.053075	ft/ft
Velocity	2.15	ft/s
Velocity Head	0.07	ft
Specific Energy	1,699.71	ft
Froude Number	0.44	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+98	0.070
1+98	4+67	0.050
4+67	7+45	0.070

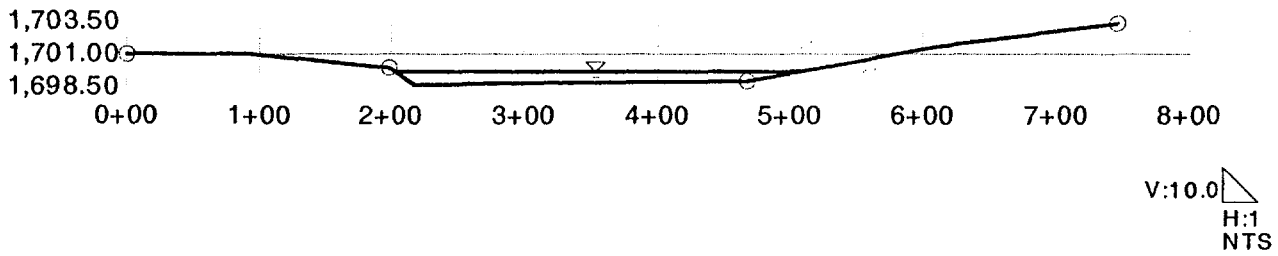
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,701.01
0+93	1,701.00
1+98	1,699.99
2+18	1,698.66
2+90	1,698.80
4+67	1,698.95
6+12	1,701.50
7+45	1,703.25

Basin I - Route Reach 3R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin I - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.053	
Slope	0.008900	ft/ft
Water Surface Elev	1,699.63	ft
Elevation Range	98.66 to 1,703.25	
Discharge	473.00	cfs



Basin I - Route Reach 4R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin I - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	008900	ft/ft
Discharg	456.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev.	1,708.07	ft
Elevation Range	06.90 to 1,713.60	
Flow Area	199.1	ft²
Wetted Perimeter	269.77	ft
Top Width	269.75	ft
Actual Depth	1.17	ft
Critical Elevation	1,707.71	ft
Critical Slope	0.045141	ft/ft
Velocity	2.29	ft/s
Velocity Head	0.08	ft
Specific Energy	1,708.15	ft
Froude Number	0.47	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+98	0.070
1+98	7+23	0.050
7+23	10+68	0.070

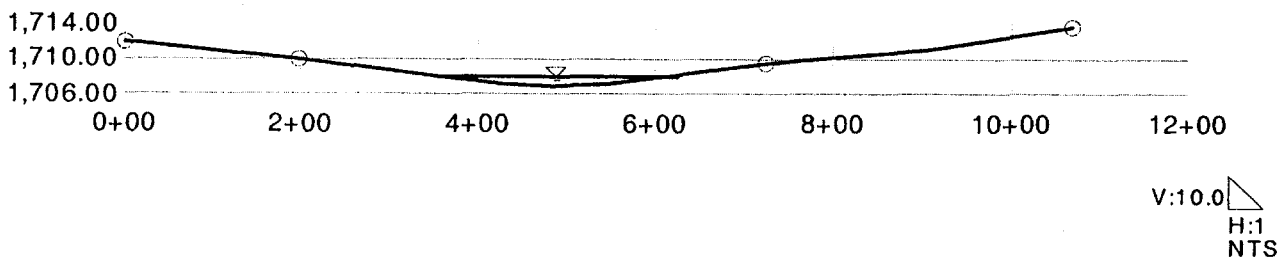
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,711.90
1+98	1,709.90
4+28	1,707.20
4+83	1,706.90
5+43	1,707.00
7+23	1,709.40
9+04	1,711.00
10+68	1,713.60

Basin I - Route Reach 4R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin I - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.050	
Slope	0.008900	ft/ft
Water Surface Elev	1,708.07	ft
Elevation Range	)6.90 to 1,713.60	
Discharge	456.00	cfs



Basin J - Route Reach 2R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	011900	ft/ft
Discharg	553.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.052	
Water Surface Elev	1,664.30	ft
Elevation Range	32.71 to 1,675.63	
Flow Area	164.3	ft²
Wetted Perimeter	145.24	ft
Top Width	145.17	ft
Actual Depth	1.59	ft
Critical Elevation	1,663.88	ft
Critical Slope	0.042363	ft/ft
Velocity	3.37	ft/s
Velocity Head	0.18	ft
Specific Energy	1,664.48	ft
Froude Number	0.56	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+10	0.070
2+10	3+27	0.050
3+27	4+53	0.070

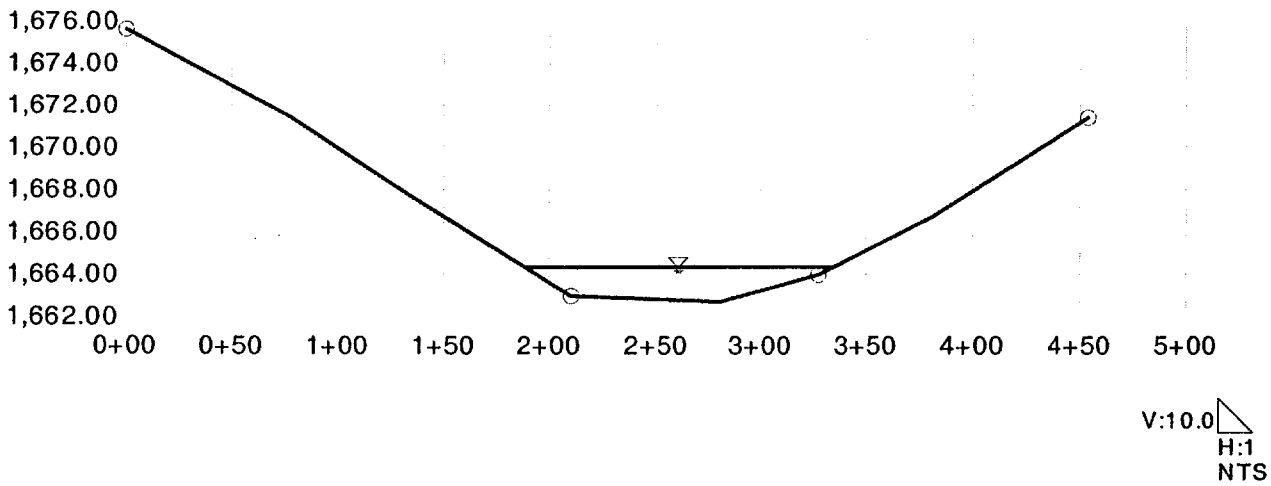
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,675.63
0+77	1,671.40
1+32	1,667.80
2+10	1,662.94
2+81	1,662.71
3+27	1,663.99
3+81	1,666.67
4+53	1,671.46

Basin J - Route Reach 2R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.052	
Slope	0.011900	ft/ft
Water Surface Elev	1,664.30	ft
Elevation Range	32.71 to 1,675.63	
Discharge	553.00	cfs



Basin J - Route Reach 3R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	012800	ft/ft
Discharg	583.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,693.92	ft
Elevation Range	92.20 to 1,702.20	
Flow Area	178.3	ft²
Wetted Perimeter	185.90	ft
Top Width	185.85	ft
Actual Depth	1.72	ft
Critical Elevation	1,693.60	ft
Critical Slope	0.040718	ft/ft
Velocity	3.27	ft/s
Velocity Head	0.17	ft
Specific Energy	1,694.09	ft
Froude Number	0.59	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+11	0.070
1+11	5+16	0.050
5+16	5+85	0.070

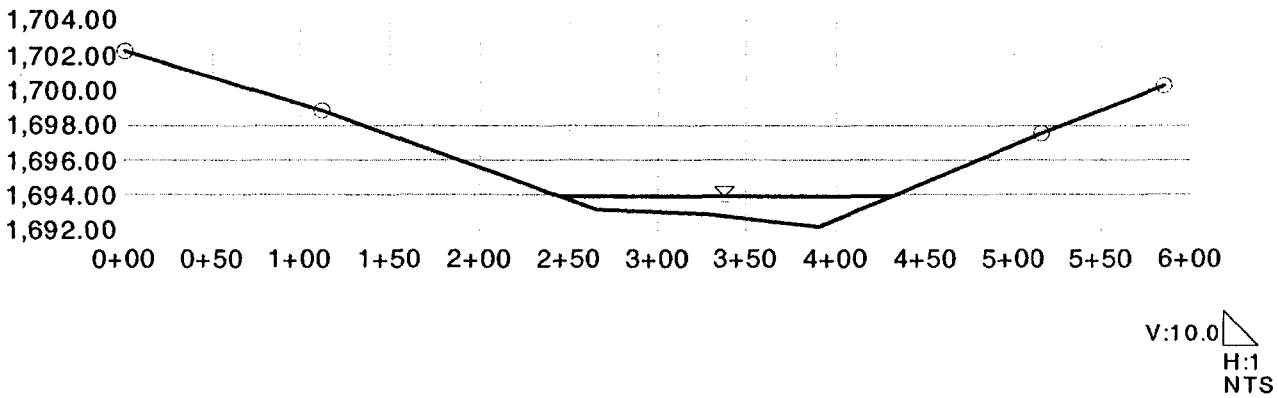
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,702.20
1+11	1,698.80
1+79	1,696.30
2+65	1,693.20
3+23	1,693.00
3+90	1,692.20
5+16	1,697.50
5+85	1,700.30

Basin J - Route Reach 3R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.012800	ft/ft
Water Surface Elev	1,693.92	ft
Elevation Range	92.20 to 1,702.20	
Discharge	583.00	cfs



Basin J - Route Reach 4R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	014200	ft/ft
Discharg	453.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.054	
Water Surface Elev	1,716.07	ft
Elevation Range	14.70 to 1,719.30	
Flow Area	167.5	ft²
Wetted Perimeter	224.33	ft
Top Width	224.30	ft
Actual Depth	1.37	ft
Critical Elevation	1,715.79	ft
Critical Slope	0.051775	ft/ft
Velocity	2.70	ft/s
Velocity Head	0.11	ft
Specific Energy	1,716.18	ft
Froude Number	0.55	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+32	0.070
1+32	3+26	0.050
3+26	4+22	0.070

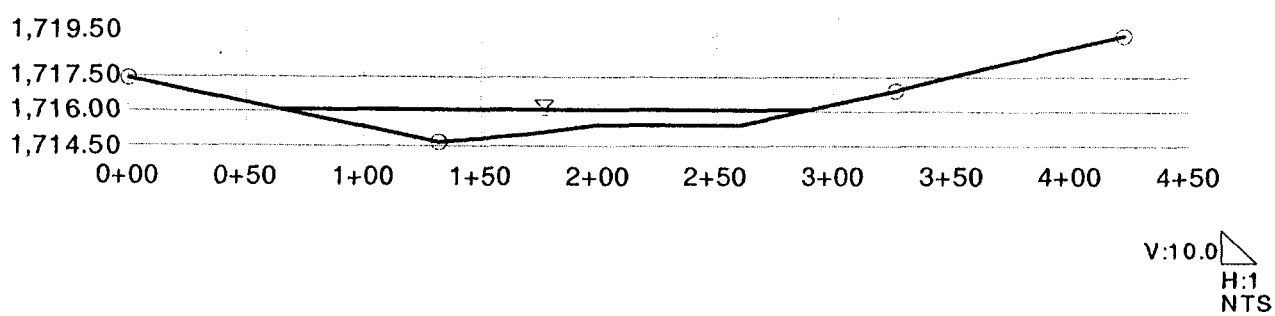
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,717.40
1+32	1,714.70
1+69	1,715.00
1+99	1,715.40
2+60	1,715.40
3+26	1,716.90
3+64	1,717.90
4+22	1,719.30

Basin J - Route Reach 4R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.054	
Slope	0.014200	ft/ft
Water Surface Elev	1,716.07	ft
Elevation Range	14.70 to 1,719.30	
Discharge	453.00	cfs



Basin J - Route Reach 5R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	011500	ft/ft
Discharg	453.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.052	
Water Surface Elev	1,728.34	ft
Elevation Range	27.10 to 1,731.10	
Flow Area	190.5	ft²
Wetted Perimeter	277.28	ft
Top Width	277.24	ft
Actual Depth	1.24	ft
Critical Elevation	1,728.06	ft
Critical Slope	0.051316	ft/ft
Velocity	2.38	ft/s
Velocity Head	0.09	ft
Specific Energy	1,728.43	ft
Froude Number	0.51	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+10	0.070
1+10	3+76	0.050
3+76	5+29	0.070

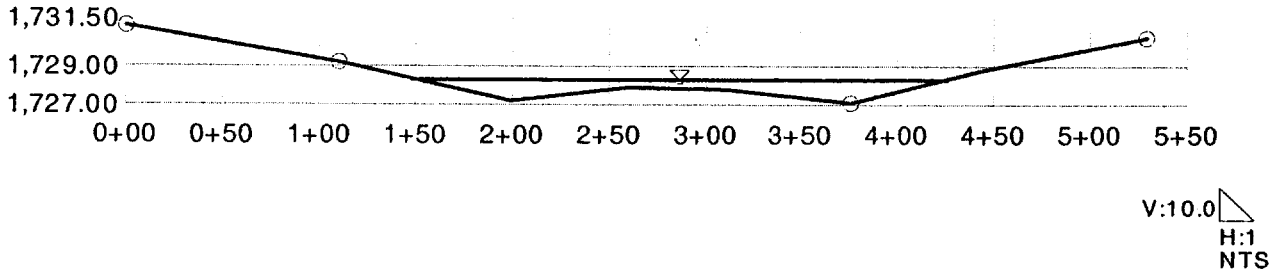
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,731.10
1+10	1,729.20
1+99	1,727.20
2+59	1,727.90
3+10	1,727.80
3+76	1,727.10
4+44	1,728.80
5+29	1,730.50

Basin J - Route Reach 5R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.052	
Slope	0.011500	ft/ft
Water Surface Elev	1,728.34	ft
Elevation Range	27.10 to 1,731.10	
Discharge	453.00	cfs



Basin J - Route Reach 6R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	014100	ft/ft
Discharg	282.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,693.51	ft
Elevation Range	92.20 to 1,702.20	
Flow Area	106.8	ft²
Wetted Perimeter	164.87	ft
Top Width	164.83	ft
Actual Depth	1.31	ft
Critical Elevation	1,693.30	ft
Critical Slope	0.046829	ft/ft
Velocity	2.64	ft/s
Velocity Head	0.11	ft
Specific Energy	1,693.62	ft
Froude Number	0.58	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+11	0.070
1+11	5+16	0.050
5+16	5+85	0.070

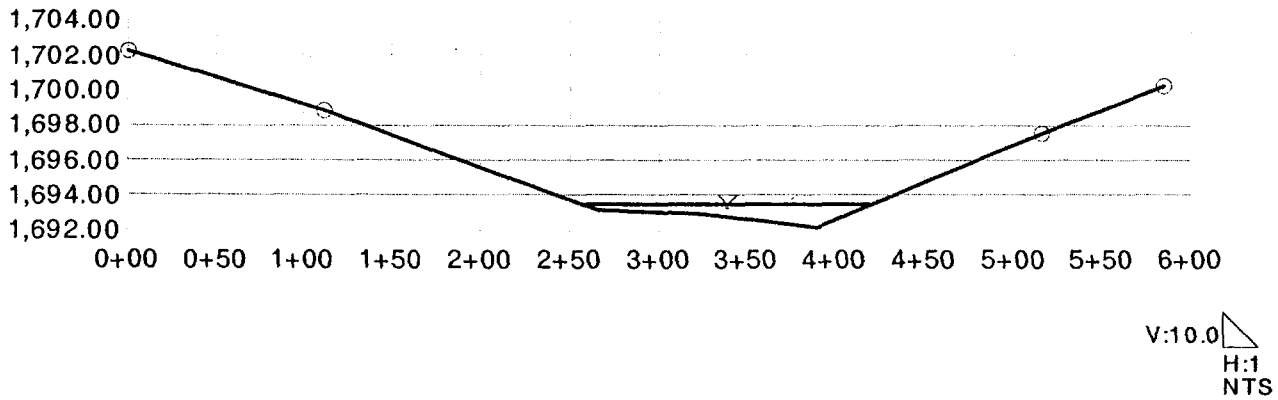
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,702.20
1+11	1,698.80
1+79	1,696.30
2+65	1,693.20
3+23	1,693.00
3+90	1,692.20
5+16	1,697.50
5+85	1,700.30

Basin J - Route Reach 6R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.014100	ft/ft
Water Surface Elev	1,693.51	ft
Elevation Range	92.20 to 1,702.20	
Discharge	282.00	cfs



Basin J - Route Reach 7R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	009900	ft/ft
Discharg	252.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.054	
Water Surface Elev	1,706.04	ft
Elevation Range	05.00 to 1,709.20	
Flow Area	125.3	ft²
Wetted Perimeter	199.28	ft
Top Width	199.26	ft
Actual Depth	1.04	ft
Critical Elevation	1,705.65	ft
Critical Slope	0.053986	ft/ft
Velocity	2.01	ft/s
Velocity Head	0.06	ft
Specific Energy	1,706.10	ft
Froude Number	0.45	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+19	0.070
2+19	3+84	0.050
3+84	8+30	0.070

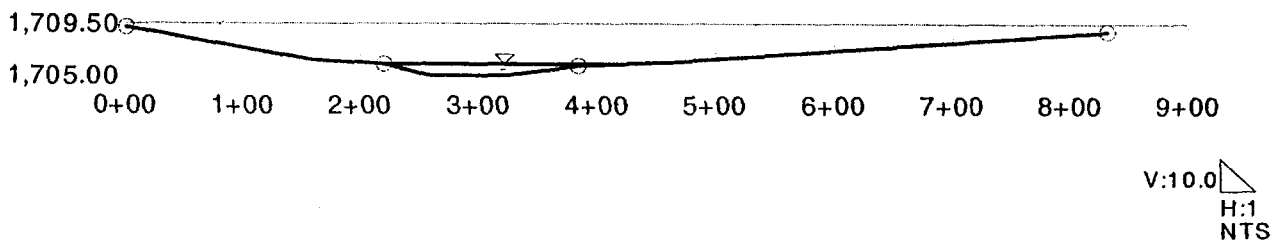
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,709.20
1+59	1,706.40
2+19	1,706.10
2+57	1,705.00
3+23	1,705.00
3+84	1,705.90
4+64	1,706.20
8+30	1,708.90

Basin J - Route Reach 7R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.054	
Slope	0.009900	ft/ft
Water Surface Elev.	1,706.04	ft
Elevation Range	)5.00 to 1,709.20	
Discharge	252.00	cfs



Basin J - Route Reach 8R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	011400	ft/ft
Discharg	100.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.053	
Water Surface Elev	1,724.58	ft
Elevation Range	24.00 to 1,726.10	
Flow Area	59.1	ft²
Wetted Perimeter	138.65	ft
Top Width	138.64	ft
Actual Depth	0.58	ft
Critical Elevation	1,724.38	ft
Critical Slope	0.062747	ft/ft
Velocity	1.69	ft/s
Velocity Head	0.04	ft
Specific Energy	1,724.62	ft
Froude Number	0.46	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+93	0.070
2+93	4+80	0.050
4+80	6+54	0.070

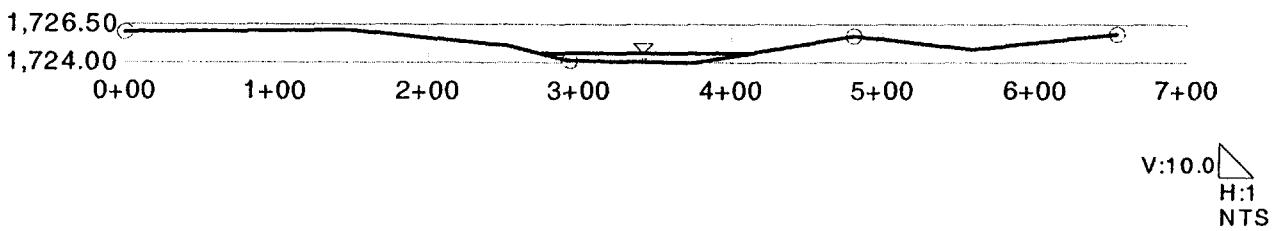
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,726.00
1+48	1,726.10
2+51	1,725.10
2+93	1,724.10
3+76	1,724.00
4+80	1,725.70
5+58	1,724.80
6+54	1,725.90

Basin J - Route Reach 8R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin J - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.053	
Slope	0.011400	ft/ft
Water Surface Elev	1,724.58	ft
Elevation Range	24.00 to 1,726.10	
Discharge	100.00	cfs



Basin K - Route Reach 2R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	005200	ft/ft
Discharg	,706.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.052	
Water Surface Elev	1,655.41	ft
Elevation Range	50.90 to 1,660.00	
Flow Area	2,007.0	ft²
Wetted Perimeter	782.78	ft
Top Width	782.64	ft
Actual Depth	4.51	ft
Critical Elevation	1,654.21	ft
Critical Slope	0.034649	ft/ft
Velocity	3.84	ft/s
Velocity Head	0.23	ft
Specific Energy	1,655.64	ft
Froude Number	0.42	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+66	0.070
1+66	5+00	0.050
5+00	9+94	0.070

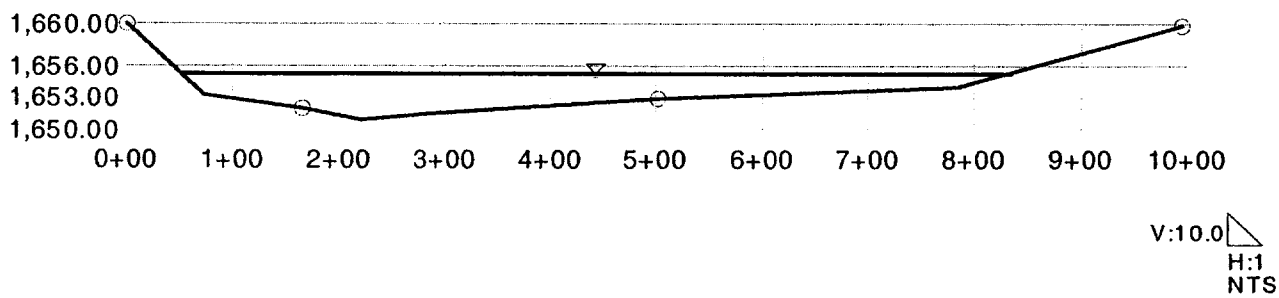
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,660.00
0+74	1,653.40
1+66	1,652.00
2+21	1,650.90
2+80	1,651.50
5+00	1,653.00
7+83	1,654.00
9+94	1,659.80

Basin K - Route Reach 2R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.052	
Slope	0.005200	ft/ft
Water Surface Elev.	1,655.41	ft
Elevation Range	50.90 to 1,660.00	
Discharge	7,706.00	cfs



Basin K - Route Reach 3R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	015600	ft/ft
Discharg	,347.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.051	
Water Surface Elev.	1,671.92	ft
Elevation Range	58.00 to 1,673.20	
Flow Area	1,051.0	ft²
Wetted Perimeter	396.27	ft
Top Width	395.49	ft
Actual Depth	3.92	ft
Critical Elevation	1,671.45	ft
Critical Slope	0.028894	ft/ft
Velocity	6.99	ft/s
Velocity Head	0.76	ft
Specific Energy	1,672.68	ft
Froude Number	0.76	
Flow Type	Subcritical	

Calculation Messages:
Water elevation exceeds lowest end station by 0.62037285 ft.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+45	0.070
1+45	3+42	0.050
3+42	5+01	0.070

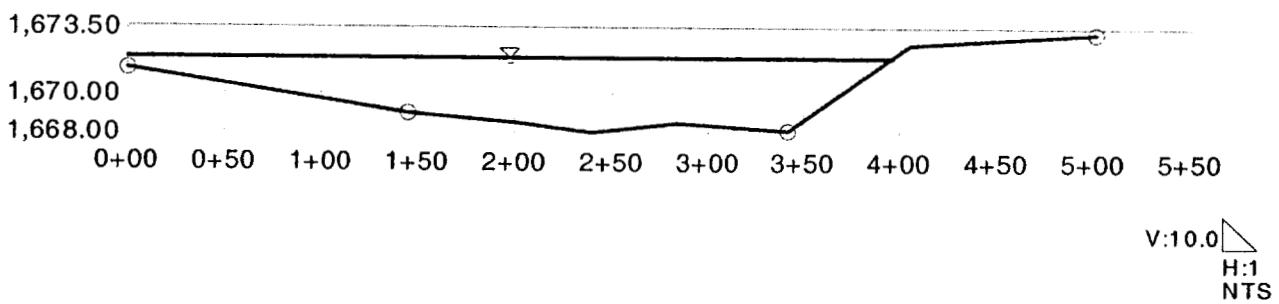
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,671.30
1+45	1,669.00
2+01	1,668.50
2+39	1,668.00
2+84	1,668.50
3+42	1,668.10
4+05	1,672.60
5+01	1,673.20

Basin K - Route Reach 3R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.051	
Slope	0.015600	ft/ft
Water Surface Elev.	1,671.92	ft
Elevation Range	38.00 to 1,673.20	
Discharge	7,347.00	cfs



Basin K - Route Reach4R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	008400	ft/ft
Discharg	,827.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,692.68	ft
Elevation Range	90.30 to 1,705.50	
Flow Area	545.6	ft²
Wetted Perimeter	400.19	ft
Top Width	400.15	ft
Actual Depth	2.38	ft
Critical Elevation	1,692.05	ft
Critical Slope	0.036271	ft/ft
Velocity	3.35	ft/s
Velocity Head	0.17	ft
Specific Energy	1,692.86	ft
Froude Number	0.51	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+08	0.070
1+08	8+03	0.050
8+03	10+85	0.070

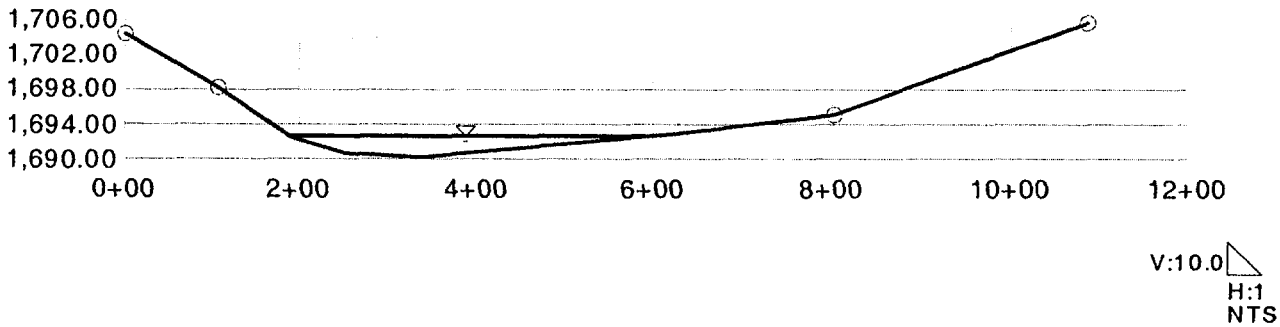
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,704.30
1+08	1,698.20
1+90	1,692.50
2+51	1,690.80
3+38	1,690.30
6+21	1,693.00
8+03	1,695.10
10+85	1,705.50

Basin K - Route Reach 4R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.008400	ft/ft
Water Surface Elev	1,692.68	ft
Elevation Range	90.30 to 1,705.50	
Discharge	1,827.00	cfs



Basin K - Route Reach 5R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	010000	ft/ft
Discharg	,234.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev.	1,692.24	ft
Elevation Range	0.30 to 1,705.50	
Flow Area	383.9	ft²
Wetted Perimeter	341.22	ft
Top Width	341.18	ft
Actual Depth	1.94	ft
Critical Elevation	1,691.76	ft
Critical Slope	0.038346	ft/ft
Velocity	3.21	ft/s
Velocity Head	0.16	ft
Specific Energy	1,692.40	ft
Froude Number	0.53	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+90	0.070
1+90	6+20	0.050
6+20	10+85	0.070

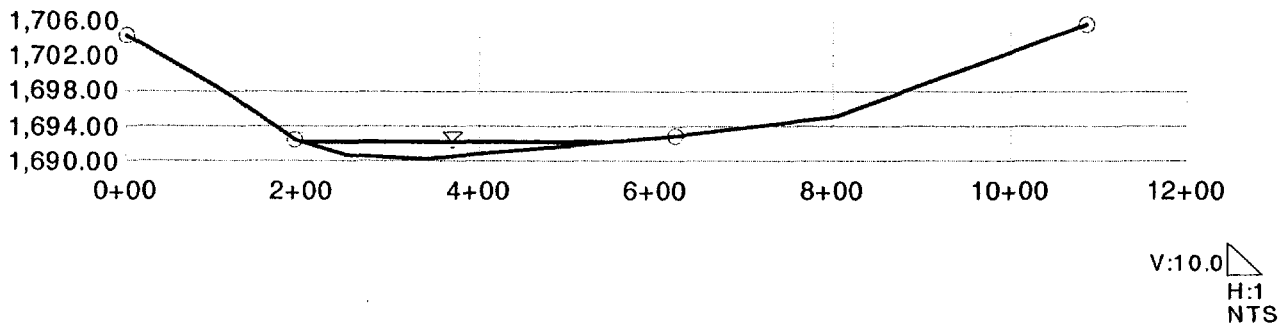
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,704.28
1+08	1,698.16
1+90	1,692.51
2+51	1,690.76
3+38	1,690.30
6+20	1,693.00
8+03	1,695.09
10+85	1,705.50

Basin K - Route Reach 5R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.010000	ft/ft
Water Surface Elev	1,692.24	ft
Elevation Range	90.30 to 1,705.50	
Discharge	1,234.00	cfs



Basin K - Route Reach 6R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	010200	ft/ft
Discharg	,254.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,720.61	ft
Elevation Range	17.70 to 1,728.90	
Flow Area	314.3	ft²
Wetted Perimeter	205.03	ft
Top Width	204.90	ft
Actual Depth	2.91	ft
Critical Elevation	1,720.02	ft
Critical Slope	0.034399	ft/ft
Velocity	3.99	ft/s
Velocity Head	0.25	ft
Specific Energy	1,720.86	ft
Froude Number	0.57	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+11	0.070
2+11	5+62	0.050
5+62	7+65	0.070

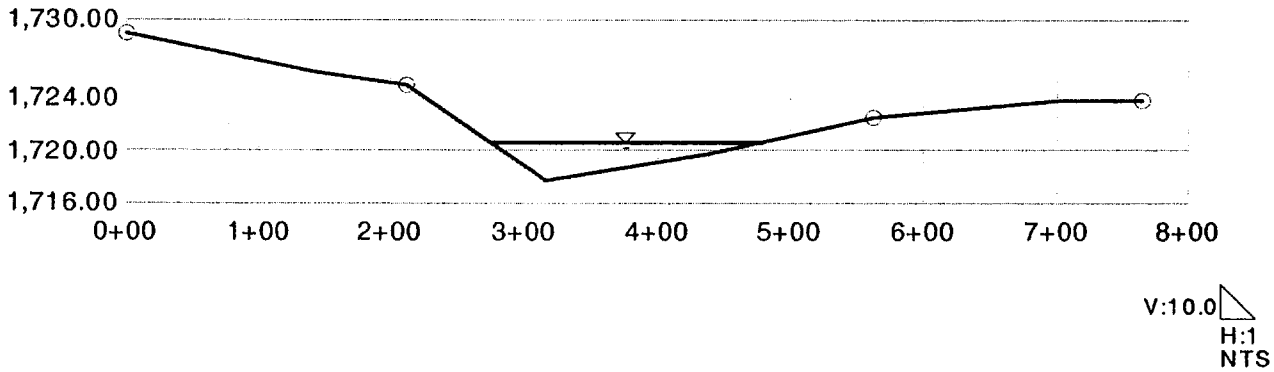
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,728.90
1+41	1,726.00
2+11	1,725.00
3+16	1,717.70
4+39	1,719.70
5+62	1,722.50
7+04	1,723.80
7+65	1,723.80

Basin K - Route Reach 6R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.010200	ft/ft
Water Surface Elev	1,720.61	ft
Elevation Range	17.70 to 1,728.90	
Discharge	1,254.00	cfs



Basin K - Route Reach 7R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	014300	ft/ft
Discharg	,220.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,735.58	ft
Elevation Range	33.00 to 1,741.60	
Flow Area	342.5	ft²
Wetted Perimeter	341.26	ft
Top Width	341.17	ft
Actual Depth	2.58	ft
Critical Elevation	1,735.18	ft
Critical Slope	0.037721	ft/ft
Velocity	3.56	ft/s
Velocity Head	0.20	ft
Specific Energy	1,735.78	ft
Froude Number	0.63	
Flow Type	Subcritical	

Calculation Messages:
Flow is divided.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+76	0.070
1+76	7+81	0.050
7+81	8+79	0.070

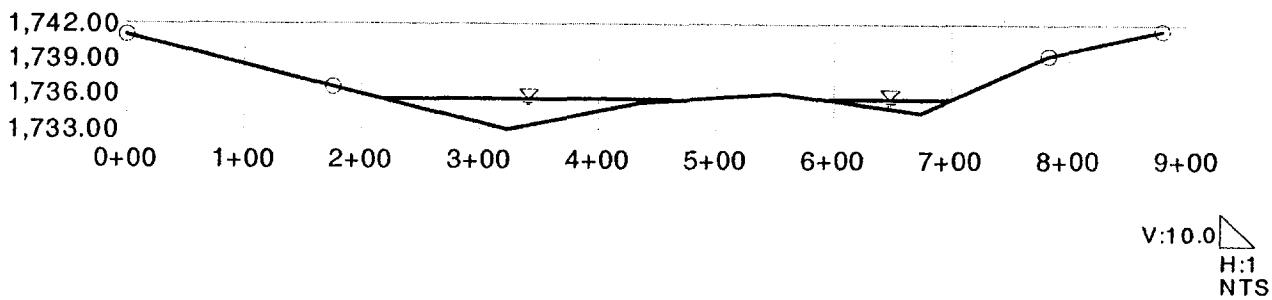
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,741.10
1+76	1,736.70
3+24	1,733.00
4+34	1,735.40
5+53	1,736.20
6+74	1,734.50
7+81	1,739.40
8+79	1,741.60

Basin K - Route Reach 7R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.050	
Slope	0.014300	ft/ft
Water Surface Elev.	1,735.58	ft
Elevation Range	33.00 to 1,741.60	
Discharge	1,220.00	cfs



Basin K - Route Reach 8R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	009900	ft/ft
Discharg	268.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.056	
Water Surface Elev.	1,741.60	ft
Elevation Range	10.20 to 1,741.80	
Flow Area	116.9	ft²
Wetted Perimeter	146.19	ft
Top Width	145.66	ft
Actual Depth	1.40	ft
Critical Elevation	1,741.24	ft
Critical Slope	0.056698	ft/ft
Velocity	2.29	ft/s
Velocity Head	0.08	ft
Specific Energy	1,741.68	ft
Froude Number	0.45	
Flow Type	Subcritical	

Calculation Messages:
Water elevation exceeds lowest end station by 0.49990863 ft.

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	0+39	0.070
0+39	1+23	0.050
1+23	1+68	0.070

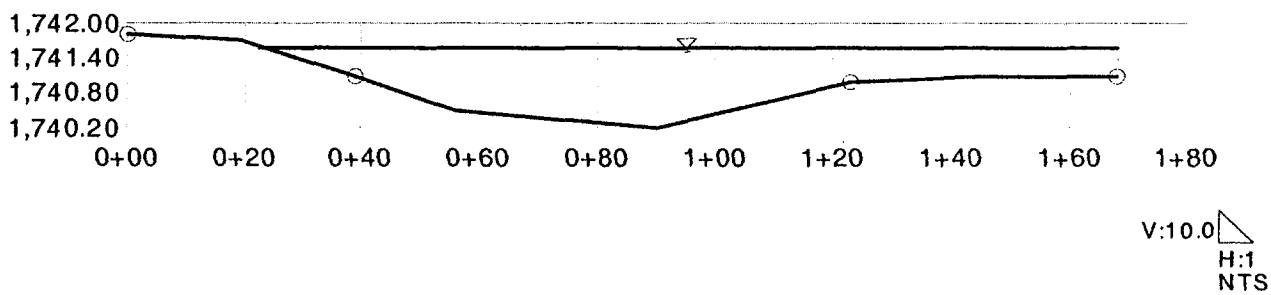
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,741.80
0+19	1,741.70
0+39	1,741.10
0+56	1,740.50
0+90	1,740.20
1+23	1,741.00
1+45	1,741.10
1+68	1,741.10

Basin K - Route Reach 8R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.056	
Slope	0.009900	ft/ft
Water Surface Elev	1,741.60	ft
Elevation Range	10.20 to 1,741.80	
Discharge	268.00	cfs



Basin K - Route Reach 9R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	008300	ft/ft
Discharg	236.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.054	
Water Surface Elev.	1,769.65	ft
Elevation Range	59.00 to 1,771.80	
Flow Area	167.5	ft²
Wetted Perimeter	397.85	ft
Top Width	397.85	ft
Actual Depth	0.65	ft
Critical Elevation	1,769.40	ft
Critical Slope	0.066231	ft/ft
Velocity	1.41	ft/s
Velocity Head	0.03	ft
Specific Energy	1,769.68	ft
Froude Number	0.38	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+11	0.070
2+11	5+66	0.050
5+66	7+19	0.070

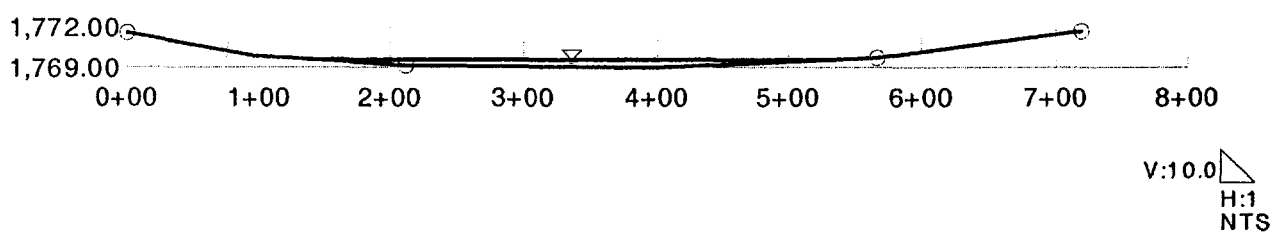
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,771.70
0+96	1,769.90
2+11	1,769.20
3+77	1,769.00
4+04	1,769.00
5+66	1,769.80
6+53	1,770.90
7+19	1,771.80

Basin K - Route Reach 9R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Rea
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.054	
Slope	0.008300	ft/ft
Water Surface Elev	1,769.65	ft
Elevation Range	39.00 to 1,771.80	
Discharge	236.00	cfs



Basin K - Route Reach 10R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	010500	ft/ft
Discharg	,395.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.051	
Water Surface Elev	1,772.19	ft
Elevation Range	70.10 to 1,774.80	
Flow Area	417.3	ft²
Wetted Perimeter	357.33	ft
Top Width	357.28	ft
Actual Depth	2.09	ft
Critical Elevation	1,771.73	ft
Critical Slope	0.039016	ft/ft
Velocity	3.34	ft/s
Velocity Head	0.17	ft
Specific Energy	1,772.37	ft
Froude Number	0.55	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+44	0.070
2+44	4+12	0.050
4+12	5+89	0.070

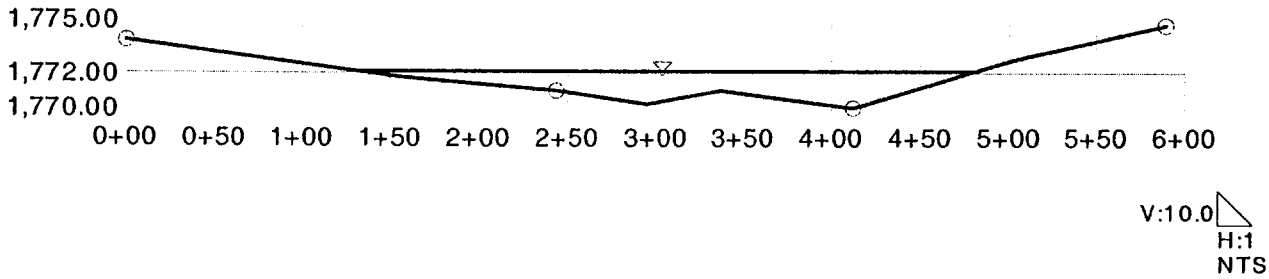
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,773.90
1+54	1,771.80
2+44	1,771.00
2+95	1,770.30
3+37	1,771.00
4+12	1,770.10
5+03	1,772.80
5+89	1,774.80

Basin K - Route Reach 10R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.051	
Slope	0.010500	ft/ft
Water Surface Elev	1,772.19	ft
Elevation Range	70.10 to 1,774.80	
Discharge	1,395.00	cfs



Basin K - Route Reach 11R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Slope	020000 ft/ft
Discharg	,013.00 cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev.	1,878.85	ft
Elevation Range	74.16 to 1,950.97	
Flow Area	137.8	ft²
Wetted Perimeter	59.56	ft
Top Width	58.79	ft
Actual Depth	4.69	ft
Critical Elevation	1,878.55	ft
Critical Slope	0.028533	ft/ft
Velocity	7.35	ft/s
Velocity Head	0.84	ft
Specific Energy	1,879.69	ft
Froude Number	0.85	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+75	0.070
1+75	3+79	0.050
3+79	4+58	0.070

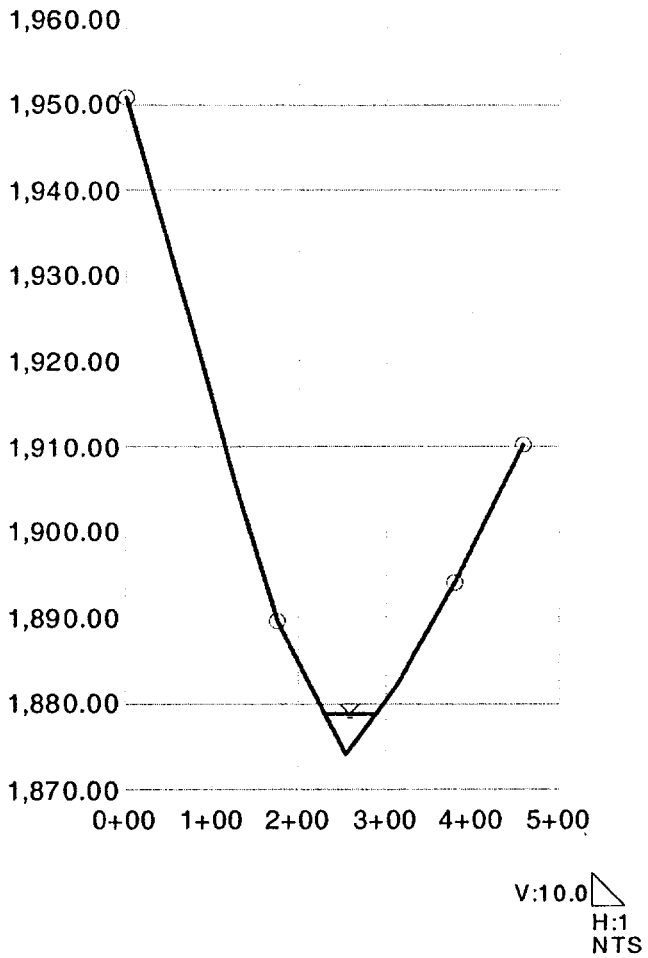
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,950.97
0+87	1,920.01
1+26	1,906.06
1+75	1,889.61
2+53	1,874.16
3+11	1,881.90
3+79	1,893.97
4+58	1,910.22

Basin K - Route Reach 11R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.020000	ft/ft
Water Surface Elev	1,878.85	ft
Elevation Range	74.16 to 1,950.97	
Discharge	1,013.00	cfs



Basin K - Route Reach 12R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	005700	ft/ft
Discharg	,905.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,881.70	ft
Elevation Range	74.20 to 1,951.00	
Flow Area	354.7	ft²
Wetted Perimeter	95.76	ft
Top Width	94.53	ft
Actual Depth	7.50	ft
Critical Elevation	1,879.84	ft
Critical Slope	0.026240	ft/ft
Velocity	5.37	ft/s
Velocity Head	0.45	ft
Specific Energy	1,882.15	ft
Froude Number	0.49	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+26	0.070
1+26	3+79	0.050
3+79	4+58	0.070

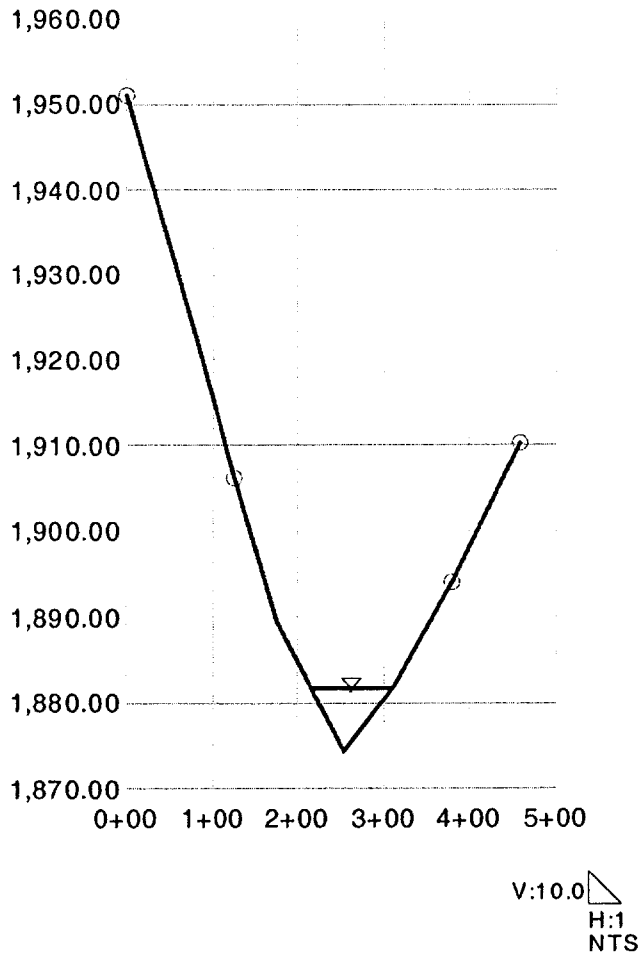
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,951.00
0+87	1,920.00
1+26	1,906.10
1+75	1,889.60
2+53	1,874.20
3+11	1,881.90
3+79	1,894.00
4+58	1,910.20

Basin K - Route Reach 12R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.005700	ft/ft
Water Surface Elev.	1,881.70	ft
Elevation Range	74.20 to 1,951.00	
Discharge	1,905.00	cfs



Basin K - Route Reach 13R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Slope	007100 ft/ft
Discharg	,587.00 cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,699.87	ft
Elevation Range	97.00 to 1,715.00	
Flow Area	603.6	ft²
Wetted Perimeter	269.53	ft
Top Width	269.38	ft
Actual Depth	2.87	ft
Critical Elevation	1,698.91	ft
Critical Slope	0.031294	ft/ft
Velocity	4.29	ft/s
Velocity Head	0.29	ft
Specific Energy	1,700.16	ft
Froude Number	0.50	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	3+96	0.070
3+96	7+80	0.050
7+80	10+12	0.070

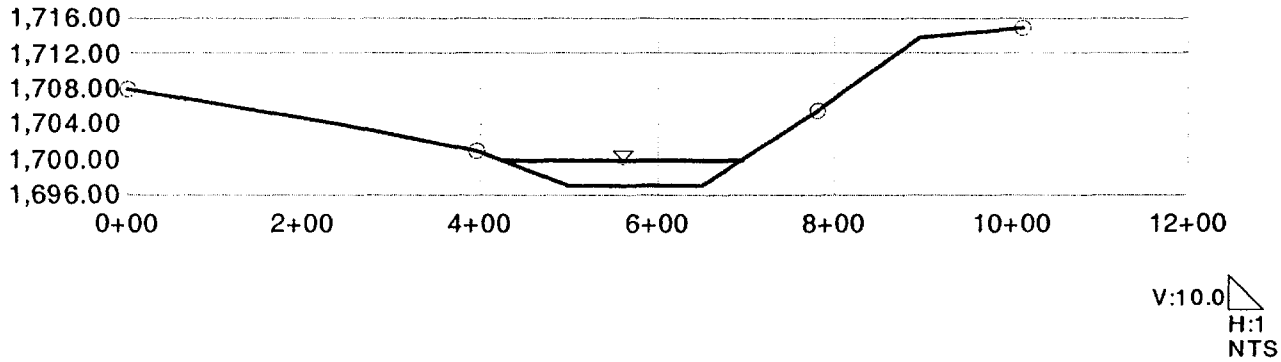
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,707.90
2+38	1,703.90
3+96	1,701.00
4+99	1,697.00
6+50	1,697.00
7+80	1,705.40
8+97	1,713.80
10+12	1,715.00

Basin K - Route Reach 13R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.007100	ft/ft
Water Surface Elev	1,699.87	ft
Elevation Range	97.00 to 1,715.00	
Discharge	2,587.00	cfs



Basin K - Route Reach 14R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	012100	ft/ft
Discharg	,422.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev.	1,750.43	ft
Elevation Range	47.30 to 1,765.00	
Flow Area	465.2	ft²
Wetted Perimeter	231.42	ft
Top Width	231.30	ft
Actual Depth	3.13	ft
Critical Elevation	1,749.84	ft
Critical Slope	0.031059	ft/ft
Velocity	5.21	ft/s
Velocity Head	0.42	ft
Specific Energy	1,750.85	ft
Froude Number	0.65	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+43	0.070
1+43	5+05	0.050
5+05	7+09	0.070

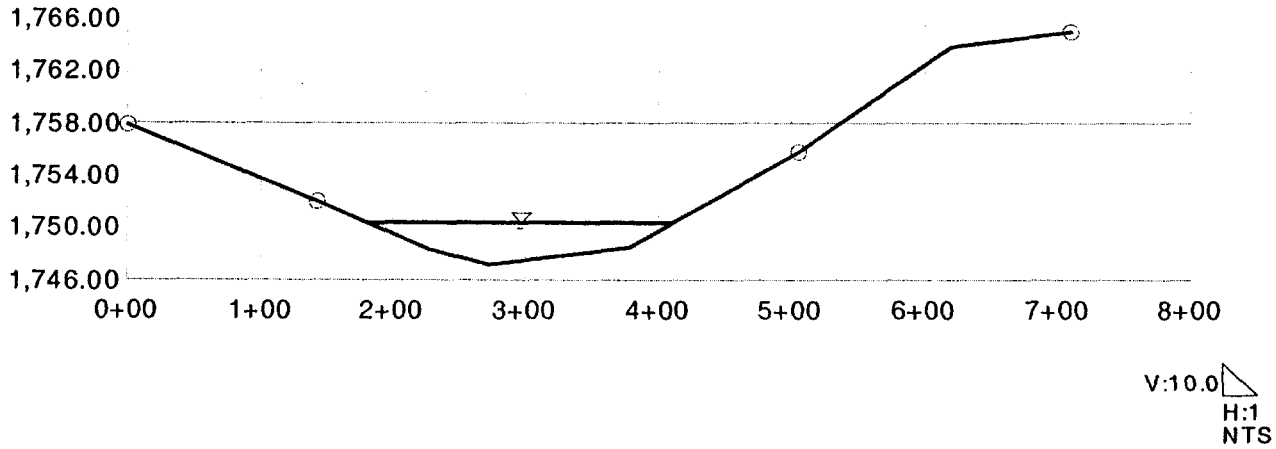
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,757.80
1+43	1,752.10
2+27	1,748.40
2+72	1,747.30
3+79	1,748.50
5+05	1,755.80
6+19	1,763.80
7+09	1,765.00

Basin K - Route Reach 14R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.012100	ft/ft
Water Surface Elev.	1,750.43	ft
Elevation Range	17.30 to 1,765.00	
Discharge	2,422.00	cfs



Basin K - Route Reach 15R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	010900	ft/ft
Discharg	,333.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,781.19	ft
Elevation Range	78.30 to 1,794.50	
Flow Area	289.7	ft²
Wetted Perimeter	160.37	ft
Top Width	160.23	ft
Actual Depth	2.89	ft
Critical Elevation	1,780.56	ft
Critical Slope	0.032344	ft/ft
Velocity	4.60	ft/s
Velocity Head	0.33	ft
Specific Energy	1,781.52	ft
Froude Number	0.60	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+00	0.070
2+00	4+34	0.050
4+34	5+73	0.070

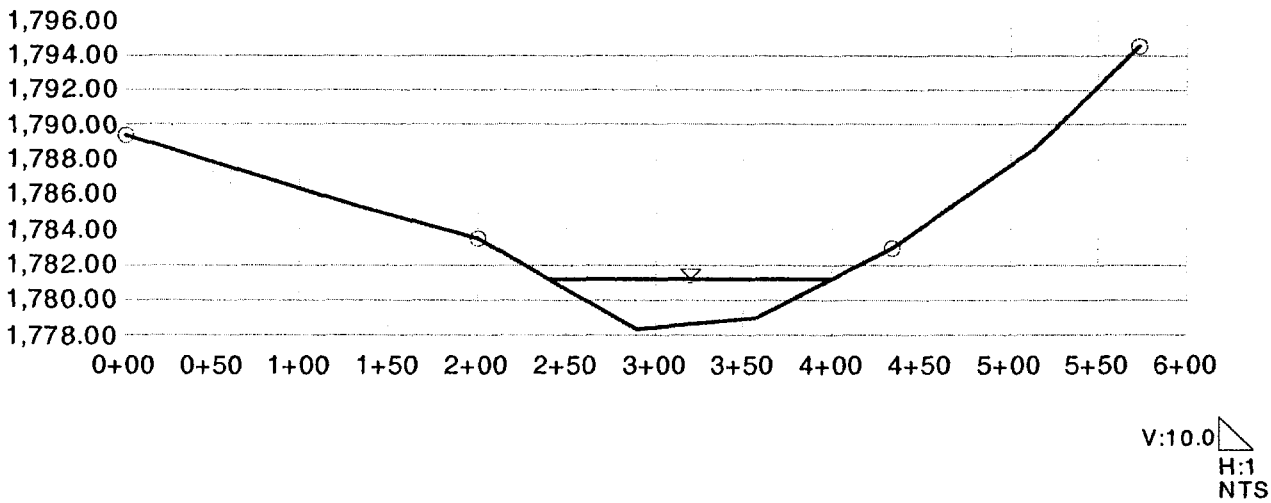
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,789.40
1+32	1,785.30
2+00	1,783.50
2+90	1,778.30
3+57	1,779.00
4+34	1,782.90
5+14	1,788.60
5+73	1,794.50

Basin K - Route Reach 15R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.010900	ft/ft
Water Surface Elev	1,781.19	ft
Elevation Range	78.30 to 1,794.50	
Discharge	1,333.00	cfs



Basin K - Route Reach 16R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Slope	038100 ft/ft
Discharg	831.00 cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev.	1,903.57	ft
Elevation Range	99.10 to 1,932.40	
Flow Area	86.9	ft²
Wetted Perimeter	41.05	ft
Top Width	39.90	ft
Actual Depth	4.47	ft
Critical Elevation	1,903.88	ft
Critical Slope	0.029299	ft/ft
Velocity	9.56	ft/s
Velocity Head	1.42	ft
Specific Energy	1,904.99	ft
Froude Number	1.14	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	0+32	0.070
0+32	1+97	0.050
1+97	7+29	0.070

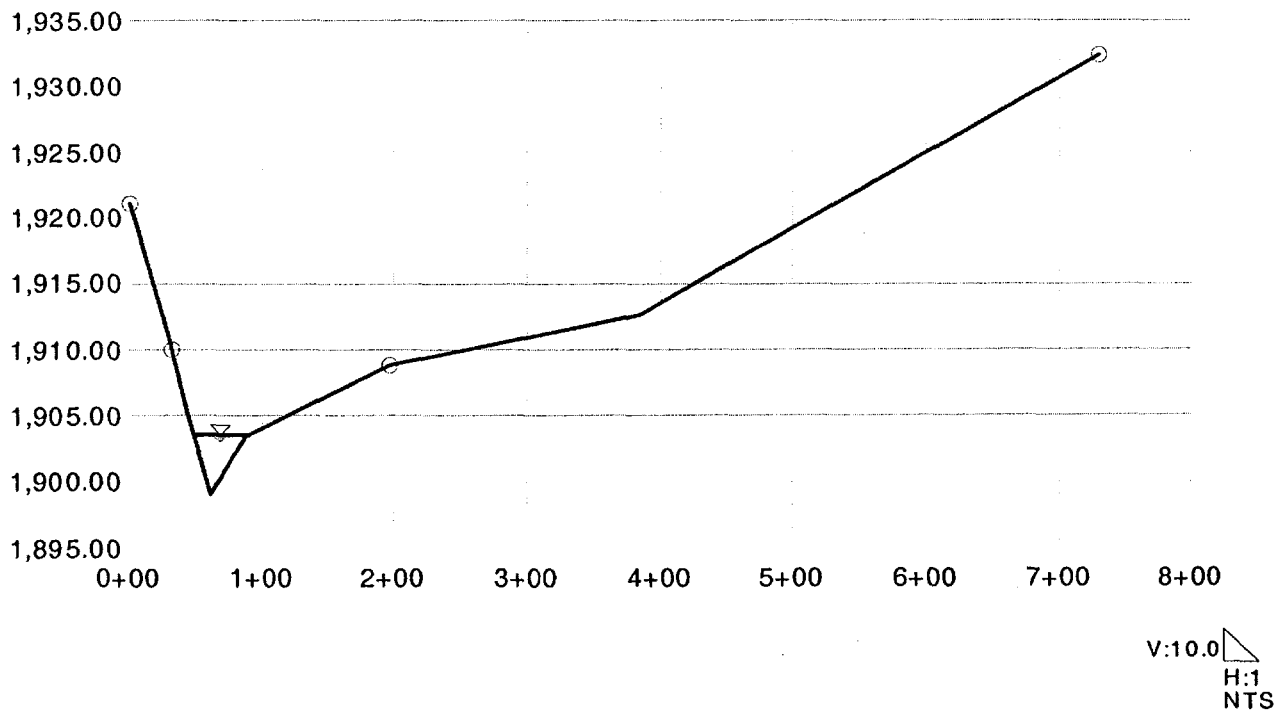
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,921.10
0+32	1,910.00
0+44	1,905.20
0+61	1,899.10
0+87	1,903.50
1+97	1,908.80
3+84	1,912.70
7+29	1,932.40

Basin K - Route Reach 16R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.038100	ft/ft
Water Surface Elev	1,903.57	ft
Elevation Range	99.10 to 1,932.40	
Discharge	831.00	cfs



Basin K - Route Reach 17R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Slope	061700 ft/ft
Discharg	705.00 cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	2,105.08	ft
Elevation Range	03.10 to 2,150.10	
Flow Area	68.7	ft²
Wetted Perimeter	41.90	ft
Top Width	41.25	ft
Actual Depth	1.98	ft
Critical Elevation	2,105.53	ft
Critical Slope	0.029609	ft/ft
Velocity	10.26	ft/s
Velocity Head	1.64	ft
Specific Energy	2,106.72	ft
Froude Number	1.40	
Flow Type	Supercritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+19	0.070
1+19	2+38	0.050
2+38	3+73	0.070

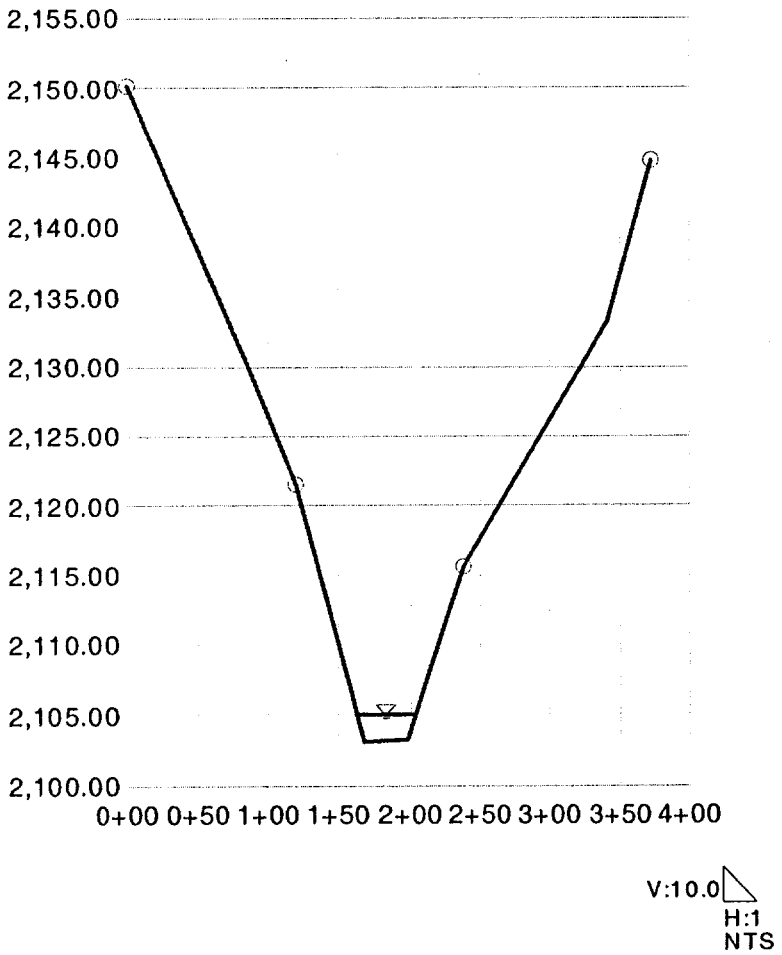
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	2,150.10
0+86	2,129.80
1+19	2,121.60
1+68	2,103.10
1+98	2,103.20
2+38	2,115.70
3+41	2,133.30
3+73	2,144.80

Basin K - Route Reach 17R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.061700	ft/ft
Water Surface Elev	2,105.08	ft
Elevation Range	03.10 to 2,150.10	
Discharge	705.00	cfs



Basin K - Route Reach 18R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	012700	ft/ft
Discharg	772.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,741.12	ft
Elevation Range	38.40 to 1,751.00	
Flow Area	188.0	ft²
Wetted Perimeter	138.51	ft
Top Width	138.41	ft
Actual Depth	2.72	ft
Critical Elevation	1,740.65	ft
Critical Slope	0.035086	ft/ft
Velocity	4.11	ft/s
Velocity Head	0.26	ft
Specific Energy	1,741.38	ft
Froude Number	0.62	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+30	0.070
2+30	3+84	0.050
3+84	8+30	0.070

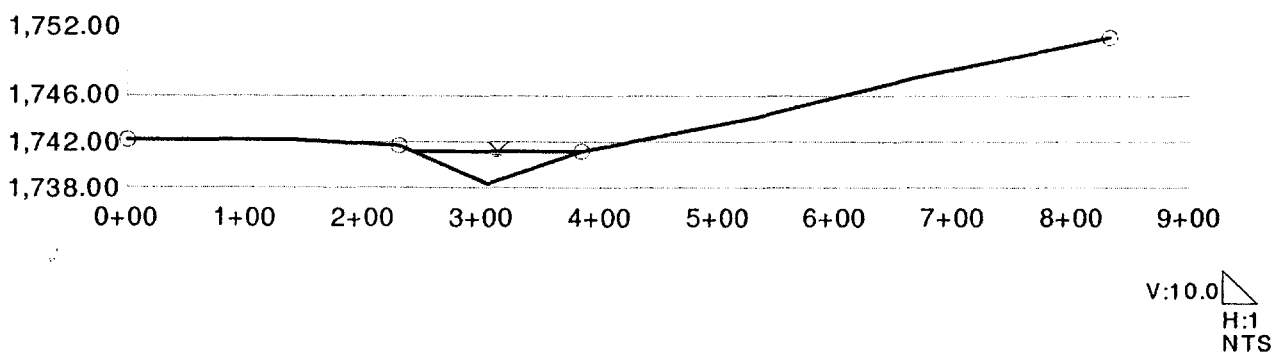
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,742.10
1+41	1,742.10
2+30	1,741.70
3+05	1,738.40
3+84	1,741.20
5+33	1,744.20
6+69	1,747.50
8+30	1,751.00

Basin K - Route Reach 18R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.012700	ft/ft
Water Surface Elev	1,741.12	ft
Elevation Range	38.40 to 1,751.00	
Discharge	772.00	cfs



Basin K - Route Reach 19R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data	
Slope	010600 ft/ft
Discharg	,519.00 cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,702.34	ft
Elevation Range	99.00 to 1,710.80	
Flow Area	288.4	ft²
Wetted Perimeter	127.70	ft
Top Width	127.39	ft
Actual Depth	3.34	ft
Critical Elevation	1,701.60	ft
Critical Slope	0.030093	ft/ft
Velocity	5.27	ft/s
Velocity Head	0.43	ft
Specific Energy	1,702.77	ft
Froude Number	0.62	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+92	0.070
2+92	4+92	0.050
4+92	6+79	0.070

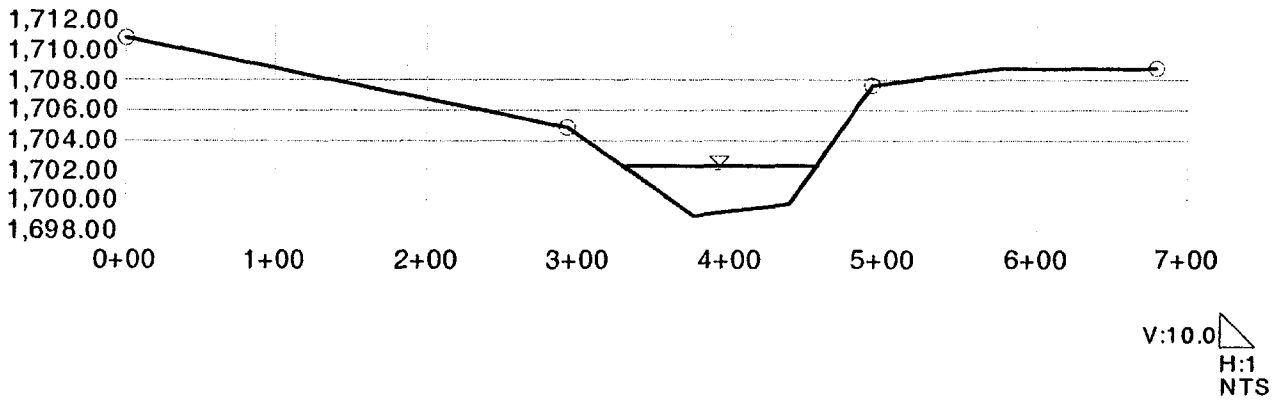
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,710.80
2+24	1,706.20
2+92	1,704.90
3+76	1,699.00
4+38	1,699.70
4+92	1,707.70
5+74	1,708.80
6+79	1,708.80

Basin K - Route Reach 19R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.050	
Slope	0.010600	ft/ft
Water Surface Elev.	1,702.34	ft
Elevation Range	99.00 to 1,710.80	
Discharge	1,519.00	cfs



Basin K - Route Reach 20R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	012700	ft/ft
Discharg	,488.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.058	
Water Surface Elev.	1,720.91	ft
Elevation Range	18.90 to 1,724.70	
Flow Area	466.4	ft²
Wetted Perimeter	406.41	ft
Top Width	406.31	ft
Actual Depth	2.01	ft
Critical Elevation	1,720.48	ft
Critical Slope	0.052321	ft/ft
Velocity	3.19	ft/s
Velocity Head	0.16	ft
Specific Energy	1,721.07	ft
Froude Number	0.52	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+54	0.070
1+54	3+16	0.050
3+16	5+15	0.070

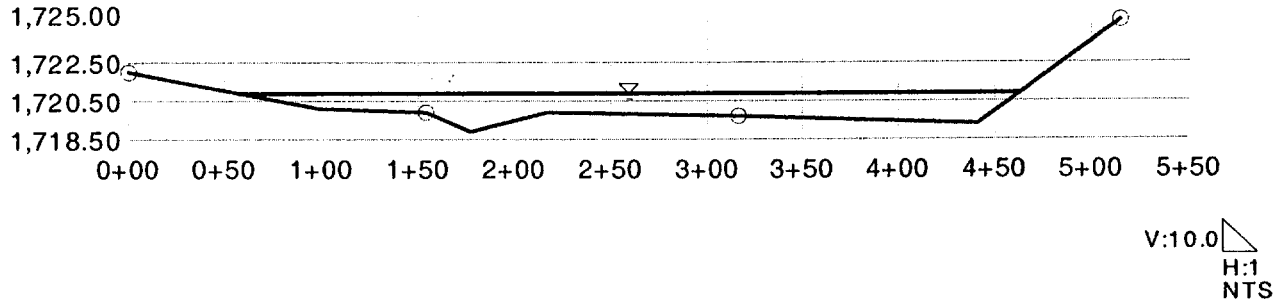
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,722.00
0+99	1,720.10
1+54	1,719.90
1+77	1,718.90
2+17	1,719.90
3+16	1,719.70
4+41	1,719.30
5+15	1,724.70

Basin K - Route Reach 20R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.058	
Slope	0.012700	ft/ft
Water Surface Elev.	1,720.91	ft
Elevation Range	18.90 to 1,724.70	
Discharge	1,488.00	cfs



Basin K - Route Reach 21R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	021600	ft/ft
Discharg	,032.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,853.20	ft
Elevation Range	50.00 to 1,906.40	
Flow Area	172.8	ft²
Wetted Perimeter	108.10	ft
Top Width	107.91	ft
Actual Depth	3.20	ft
Critical Elevation	1,852.98	ft
Critical Slope	0.031986	ft/ft
Velocity	5.97	ft/s
Velocity Head	0.55	ft
Specific Energy	1,853.76	ft
Froude Number	0.83	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	3+07	0.070
3+07	5+26	0.050
5+26	7+64	0.070

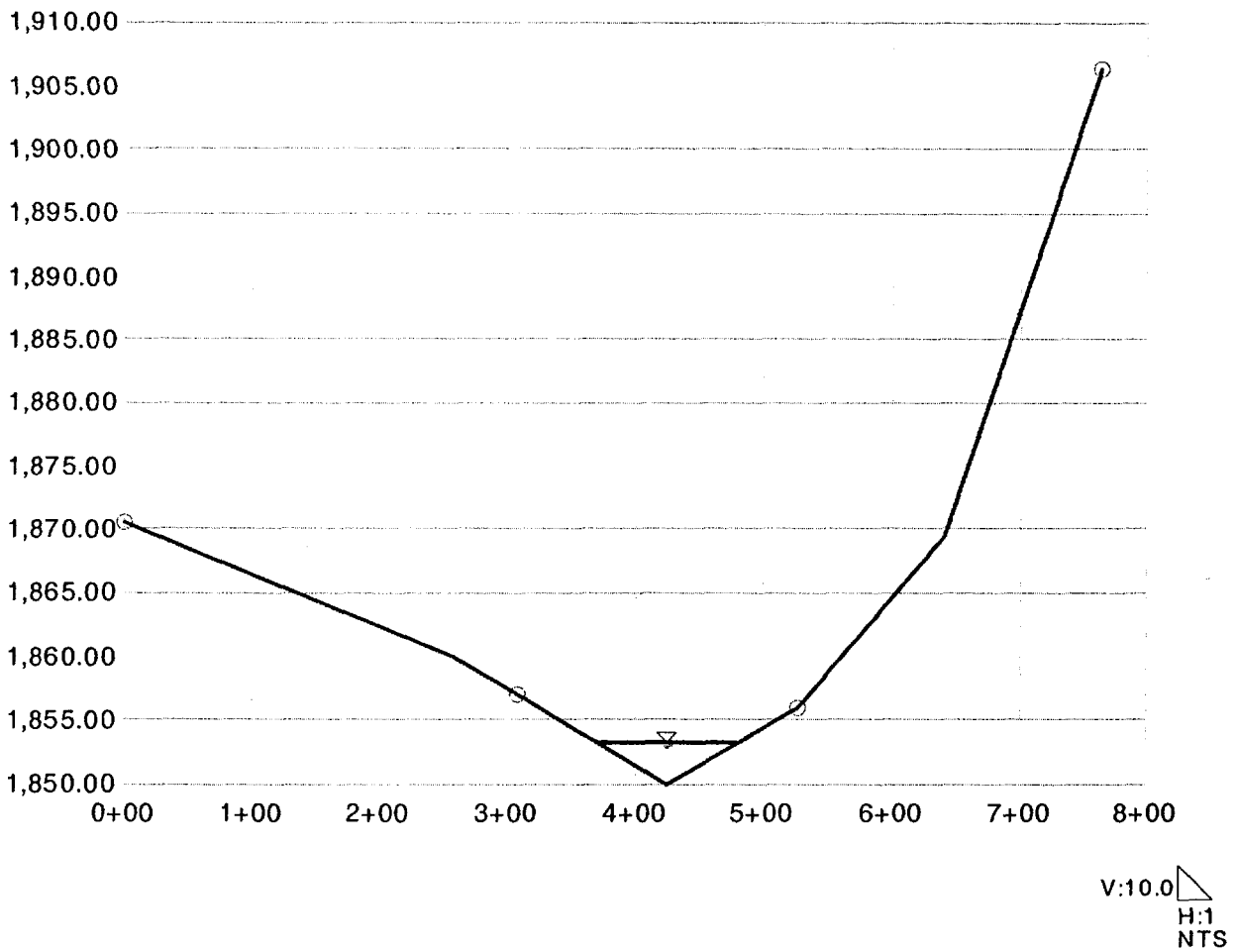
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,870.53
1+58	1,864.00
2+56	1,860.00
3+07	1,857.00
4+25	1,850.00
5+26	1,856.00
6+41	1,869.40
7+64	1,906.40

Basin K - Route Reach 21R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.021600	ft/ft
Water Surface Elev.	1,853.20	ft
Elevation Range	50.00 to 1,906.40	
Discharge	1,032.00	cfs



Basin K - Route Reach 22R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	007800	ft/ft
Discharg	612.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,878.82	ft
Elevation Range	74.20 to 1,951.00	
Flow Area	134.6	ft²
Wetted Perimeter	58.98	ft
Top Width	58.22	ft
Actual Depth	4.62	ft
Critical Elevation	1,877.78	ft
Critical Slope	0.030529	ft/ft
Velocity	4.55	ft/s
Velocity Head	0.32	ft
Specific Energy	1,879.14	ft
Froude Number	0.53	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+26	0.070
1+26	3+79	0.050
3+79	4+58	0.070

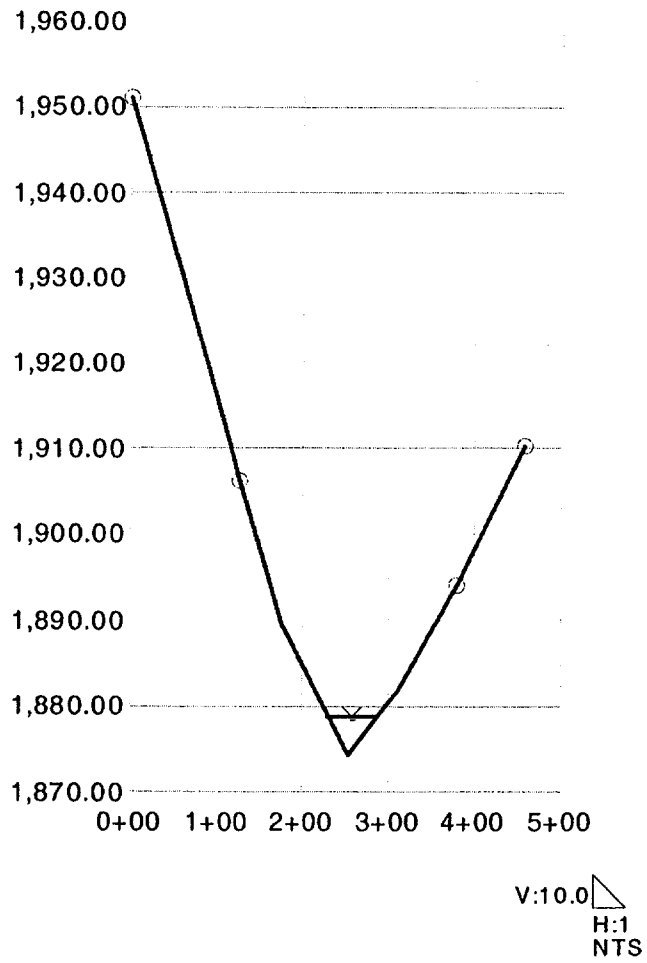
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,951.00
0+87	1,920.00
1+26	1,906.10
1+75	1,889.60
2+53	1,874.20
3+11	1,881.90
3+79	1,894.00
4+58	1,910.20

Basin K - Route Reach 22R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.007800	ft/ft
Water Surface Elev	1,878.82	ft
Elevation Range	74.20 to 1,951.00	
Discharge	612.00	cfs



Basin K - Route Reach 23R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	009100	ft/ft
Discharg	508.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,708.86	ft
Elevation Range	07.90 to 1,711.90	
Flow Area	234.9	ft²
Wetted Perimeter	352.39	ft
Top Width	352.38	ft
Actual Depth	0.96	ft
Critical Elevation	1,708.54	ft
Critical Slope	0.047267	ft/ft
Velocity	2.16	ft/s
Velocity Head	0.07	ft
Specific Energy	1,708.93	ft
Froude Number	0.47	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+88	0.070
1+88	5+58	0.050
5+58	7+25	0.070

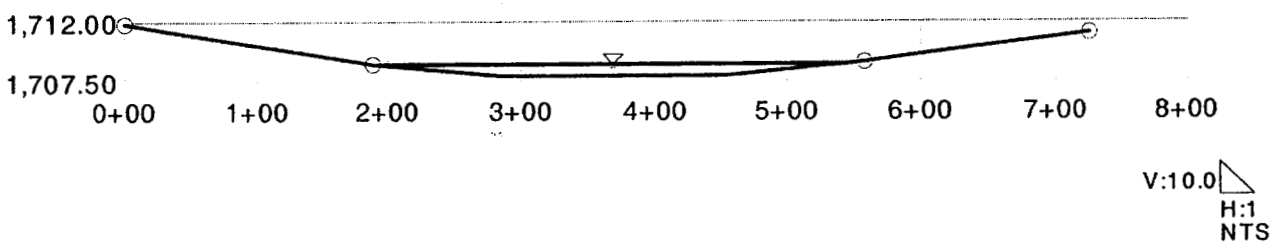
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,711.90
1+88	1,708.90
2+82	1,708.00
3+57	1,708.00
4+55	1,707.90
5+58	1,709.00
6+32	1,710.00
7+25	1,711.10

Basin K - Route Reach 23R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficie	0.050	
Slope	0.009100	ft/ft
Water Surface Elev	1,708.86	ft
Elevation Range	)7.90 to 1,711.90	
Discharge	508.00	cfs



Basin K - Route Reach 24R
Worksheet for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	009900	ft/ft
Discharg	773.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.050	
Water Surface Elev	1,691.90	ft
Elevation Range	0.30 to 1,705.50	
Flow Area	274.2	ft²
Wetted Perimeter	294.59	ft
Top Width	294.56	ft
Actual Depth	1.60	ft
Critical Elevation	1,691.49	ft
Critical Slope	0.041159	ft/ft
Velocity	2.82	ft/s
Velocity Head	0.12	ft
Specific Energy	1,692.03	ft
Froude Number	0.52	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	1+08	0.070
1+08	8+03	0.050
8+03	10+85	0.070

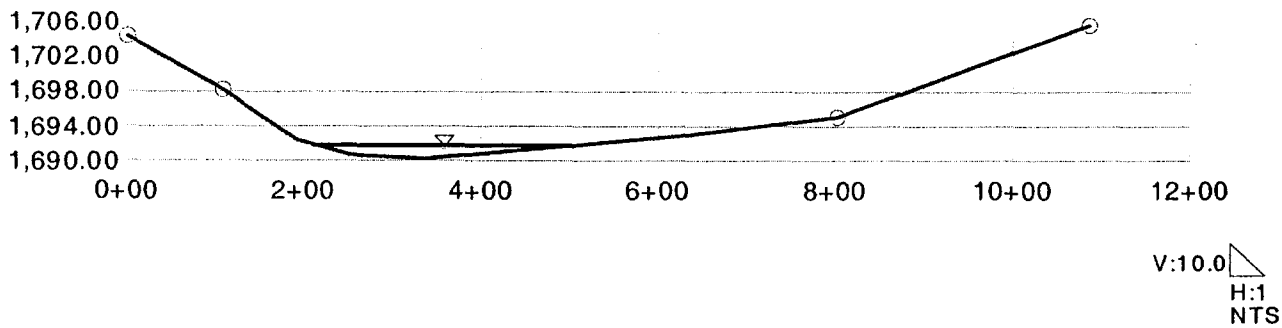
Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,704.30
1+08	1,698.20
1+90	1,692.50
2+51	1,690.80
3+38	1,690.30
6+21	1,693.00
8+03	1,695.10
10+85	1,705.50

Basin K - Route Reach 24R
Cross Section for Irregular Channel

Project Description	
Worksheet	Basin K - Route Reac
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Section Data		
Mannings Coefficiei	0.050	
Slope	0.009900	ft/ft
Water Surface Elev	1,691.90	ft
Elevation Range	90.30 to 1,705.50	
Discharge	773.00	cfs



D.4 RESERVOIR ROUTING DATA

Culvert Calculator Report
Basin A2 Culvert 30"

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	0.00	ft	Headwater Depth/Height	345.92	
Computed Headwater Elev:	2,361.80	ft	Discharge	600.00	cfs
Inlet Control HW Elev.	2,093.27	ft	Tailwater Elevation	1,490.00	ft
Outlet Control HW Elev.	2,361.80	ft	Control Type	Outlet Control	

Grades					
Upstream Invert	1,497.00	ft	Downstream Invert	1,491.00	ft
Length	243.00	ft	Constructed Slope	0.024691	ft/ft

Hydraulic Profile					
Profile	PressureProfile		Depth, Downstream	2.50	ft
Slope Type	N/A		Normal Depth	N/A	ft
Flow Regime	N/A		Critical Depth	2.50	ft
Velocity Downstream	122.23	ft/s	Critical Slope	2.140026	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.013	
Section Material	Concrete		Span	2.50	ft
Section Size	30 inch		Rise	2.50	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	2,361.80	ft	Upstream Velocity Head	232.18	ft
Ke	0.50		Entrance Loss	116.09	ft

Inlet Control Properties					
Inlet Control HW Elev.	2,093.27	ft	Flow Control	N/A	
Inlet Type	Square edge w/headwall		Area Full	4.9	ft^2
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

Rating Table Report
Basin A2 Culvert 30"

Range Data:

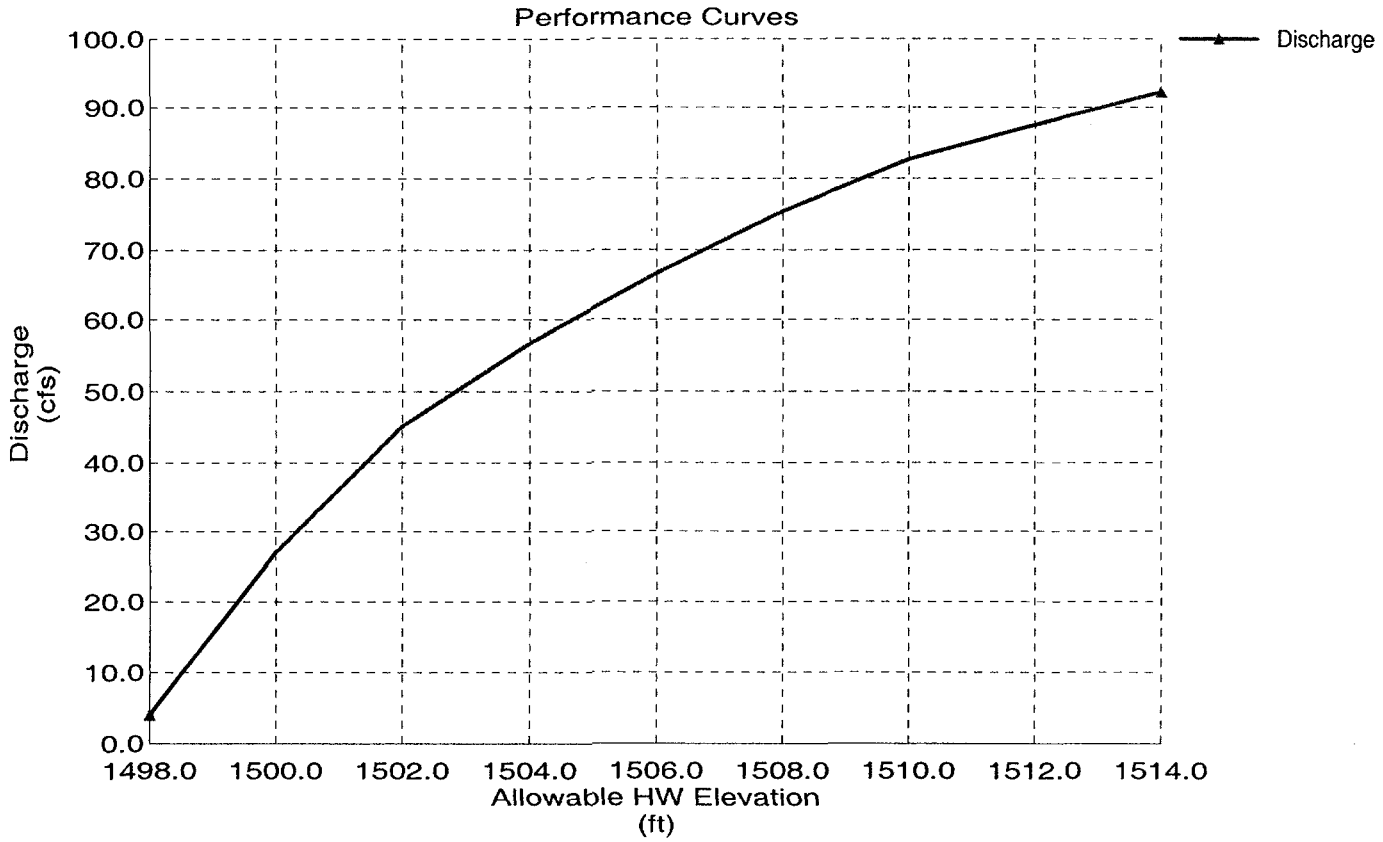
	Minimum	Maximum	Increment	
Allowable HW E	1,498.00	1,514.00	2.00	ft

HW Elev. (ft)	Discharge (cfs)
1,498.00	3.93
1,500.00	27.00
1,502.00	45.07
1,504.00	56.94
1,506.00	66.73
1,508.00	75.26
1,510.00	82.74
1,512.00	87.60
1,514.00	92.21

Performance Curves Report
Basin A2 Culvert 30"

Range Data:

	Minimum	Maximum	Increment
Allowable HW E	1,498.00	1,514.00	2.00 ft



Culvert Calculator Report
Basin D2 Culvert 24"

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	0.00	ft	Headwater Depth/Height	39.66	
Computed Headwater Elev:	1,635.31	ft	Discharge	80.00	cfs
Inlet Control HW Elev.	1,587.56	ft	Tailwater Elevation	1,552.50	ft
Outlet Control HW Elev.	1,635.31	ft	Control Type	Outlet Control	

Grades					
Upstream Invert	1,556.00	ft	Downstream Invert	1,551.70	ft
Length	156.00	ft	Constructed Slope	0.027564	ft/ft

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	2.00	ft
Slope Type	Mild		Normal Depth	N/A	ft
Flow Regime	Subcritical		Critical Depth	2.00	ft
Velocity Downstream	25.47	ft/s	Critical Slope	0.412358	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	2.00	ft
Section Size	24 inch		Rise	2.00	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	1,635.31	ft	Upstream Velocity Head	10.08	ft
Ke	0.50		Entrance Loss	5.04	ft

Inlet Control Properties					
Inlet Control HW Elev.	1,587.56	ft	Flow Control	Submerged	
Inlet Type	Mitered to slope		Area Full	3.1	ft^2
K	0.02100		HDS 5 Chart	2	
M	1.33000		HDS 5 Scale	2	
C	0.04630		Equation Form	1	
Y	0.75000				

Rating Table Report
Basin D2 Culvert 24"

Range Data:

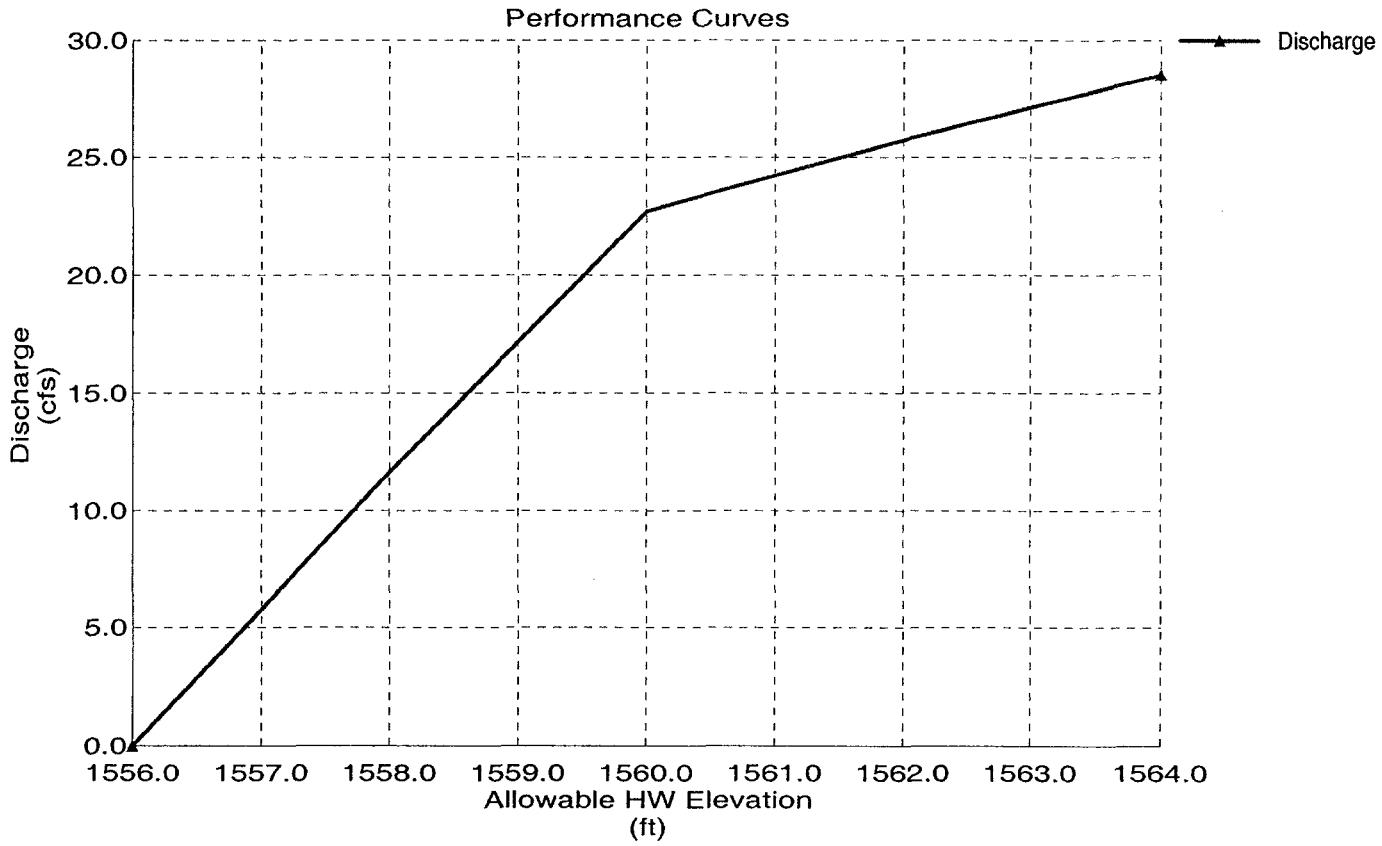
	Minimum	Maximum	Increment	
Allowable HW E	1,556.00	1,564.00	2.00	ft

HW Elev. (ft)	Discharge (cfs)
1,556.00	0.00
1,558.00	11.63
1,560.00	22.70
1,562.00	25.69
1,564.00	28.52

Performance Curves Report
Basin D2 Culvert 24"

Range Data:

	Minimum	Maximum	Increment
Allowable HW E	1,556.00	1,564.00	2.00 ft



Culvert Calculator Report
Basin D5 Culvert 10'x10'

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	0.00	ft	Headwater Depth/Height	1.64	
Computed Headwater Elev	1,564.37	ft	Discharge	1,500.00	cfs
Inlet Control HW Elev.	1,564.37	ft	Tailwater Elevation	1,546.20	ft
Outlet Control HW Elev.	1,563.53	ft	Control Type	Inlet Control	

Grades					
Upstream Invert	1,548.00	ft	Downstream Invert	1,547.20	ft
Length	121.00	ft	Constructed Slope	0.006612	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	8.05	ft
Slope Type	Steep		Normal Depth	7.70	ft
Flow Regime	Supercritical		Critical Depth	8.88	ft
Velocity Downstream	18.63	ft/s	Critical Slope	0.004639	ft/ft

Section					
Section Shape	Box		Mannings Coefficient	0.013	
Section Material	Concrete		Span	10.00	ft
Section Size	10 x 10 ft		Rise	10.00	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	1,563.53	ft	Upstream Velocity Head	4.44	ft
Ke	0.50		Entrance Loss	2.22	ft

Inlet Control Properties					
Inlet Control HW Elev.	1,564.37	ft	Flow Control	Submerged	
Inlet Type	30 to 75° wingwall flares		Area Full	100.0	ft²
K	0.02600		HDS 5 Chart	8	
M	1.00000		HDS 5 Scale	1	
C	0.03470		Equation Form	1	
Y	0.86000				

Rating Table Report
Basin D5 Culvert 10'x10'

Range Data:

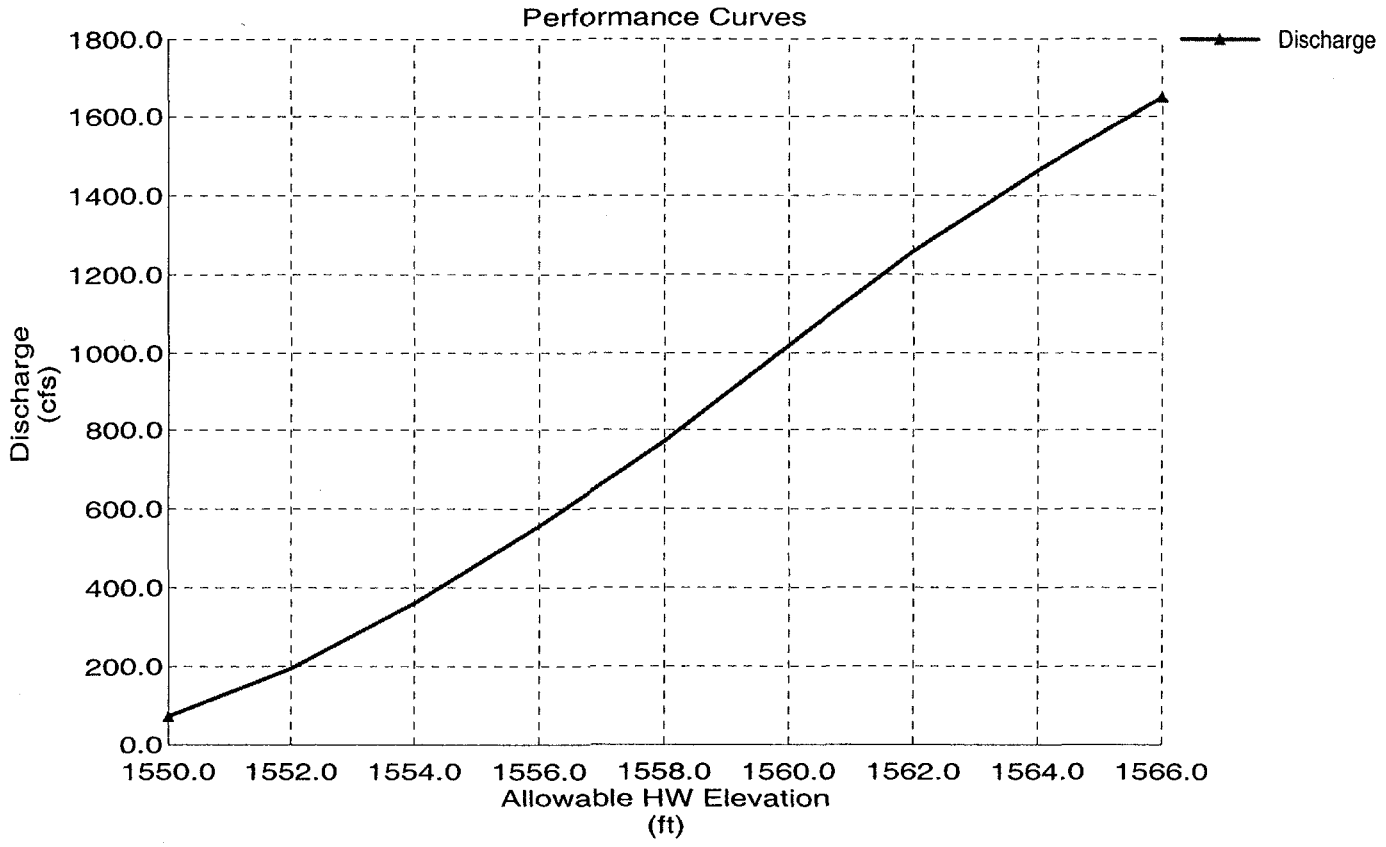
	Minimum	Maximum	Increment	
Allowable HW E	1,550.00	1,566.00	2.00	ft

HW Elev. (ft)	Discharge (cfs)
1,550.00	69.30
1,552.00	196.01
1,554.00	360.10
1,556.00	554.41
1,558.00	774.81
1,560.00	1,018.51
1,562.00	1,256.98
1,564.00	1,463.59
1,566.00	1,648.78

Performance Curves Report
Basin D5 Culvert 10'x10'

Range Data:

	Minimum	Maximum	Increment	
Allowable HW E	1,550.00	1,566.00	2.00	ft



Culvert Calculator Report
Basin I2 Culvert (2) 6'x4'

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	0.00	ft	Headwater Depth/Height	2.49	
Computed Headwater Elev:	1,695.96	ft	Discharge	660.00	cfs
Inlet Control HW Elev.	1,695.96	ft	Tailwater Elevation	1,685.00	ft
Outlet Control HW Elev.	1,694.41	ft	Control Type	Inlet Control	

Grades					
Upstream Invert	1,686.00	ft	Downstream Invert	1,683.00	ft
Length	140.00	ft	Constructed Slope	0.021429	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	2.99	ft
Slope Type	Steep		Normal Depth	2.63	ft
Flow Regime	Supercritical		Critical Depth	4.00	ft
Velocity Downstream	18.41	ft/s	Critical Slope	0.011348	ft/ft

Section					
Section Shape	Box		Mannings Coefficient	0.013	
Section Material	Concrete		Span	6.00	ft
Section Size	6 x 4 ft		Rise	4.00	ft
Number Sections	2				

Outlet Control Properties					
Outlet Control HW Elev.	1,694.41	ft	Upstream Velocity Head	2.94	ft
Ke	0.50		Entrance Loss	1.47	ft

Inlet Control Properties					
Inlet Control HW Elev.	1,695.96	ft	Flow Control	N/A	
Inlet Type	30 to 75° wingwall flares		Area Full	48.0	ft^2
K	0.02600		HDS 5 Chart	8	
M	1.00000		HDS 5 Scale	1	
C	0.03470		Equation Form	1	
Y	0.86000				

Rating Table Report
Basin I2 Culvert (2) 6'x4'

Range Data:

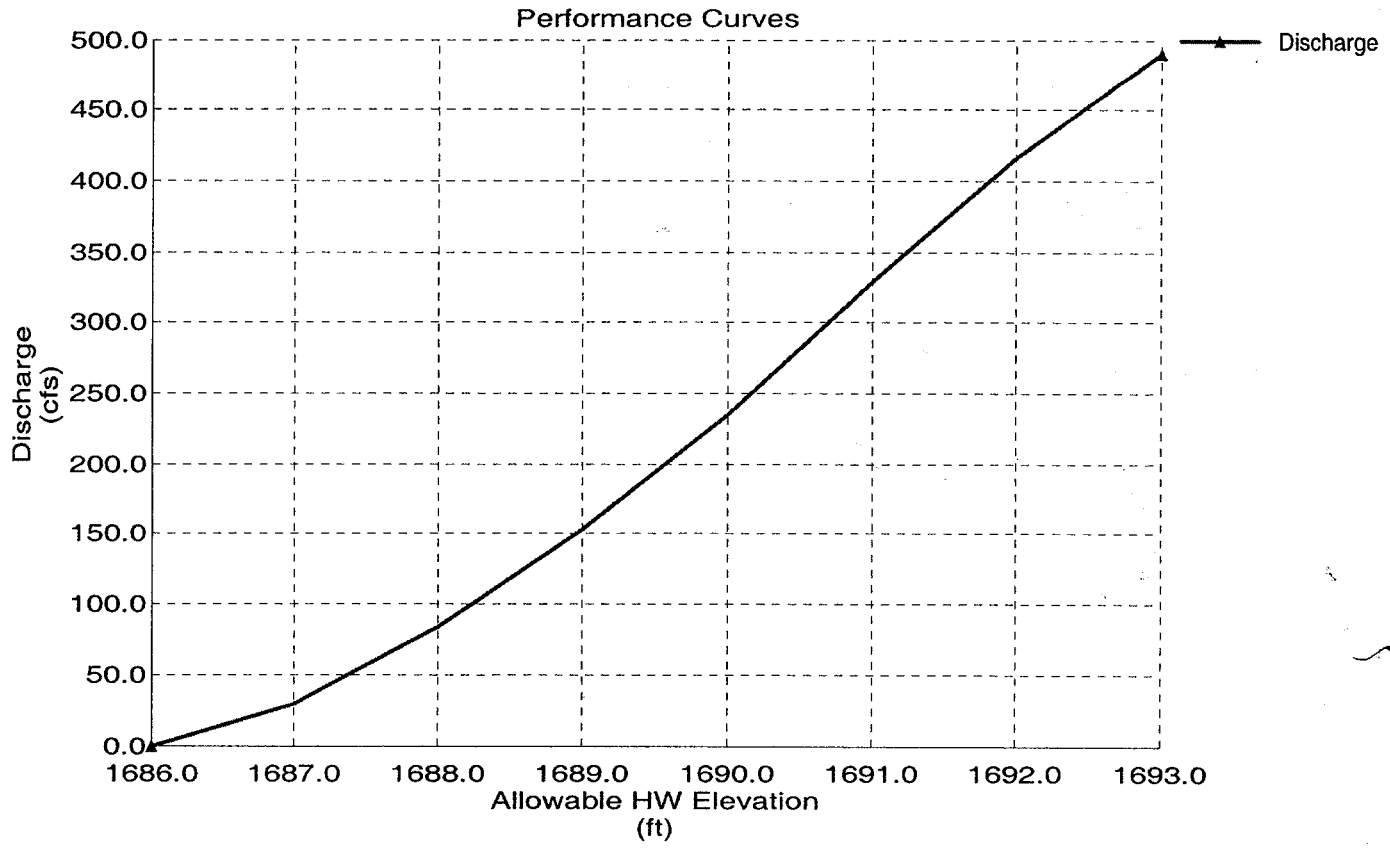
	Minimum	Maximum	Increment	
Allowable HW E	1,686.00	1,693.00	1.00	ft

HW Elev. (ft)	Discharge (cfs)
1,686.00	0.00
1,687.00	29.40
1,688.00	83.16
1,689.00	152.78
1,690.00	235.22
1,691.00	328.72
1,692.00	415.72
1,693.00	489.10

Performance Curves Report
Basin I2 Culvert (2) 6'x4'

Range Data:

	Minimum	Maximum	Increment
Allowable HW E	1,686.00	1,693.00	1.00 ft



Culvert Designer/Analyzer Report
Basin J8 Culvert (2) 48" CMPs w/ Overtopping

Analysis Component			
Storm Event	Design	Discharge	600.00 cfs

Peak Discharge Method: User-Specified			
Design Discharge	600.00 cfs	Check Discharge	0.00 cfs

Tailwater properties: Irregular Channel

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	2+62	0.070
2+62	4+60	0.050
4+60	7+75	0.070

Natural Channel Points

Station (ft)	Elevation (ft)
0+00	1,707.00
1+34	1,703.40
2+11	1,700.80
2+62	1,698.80
3+64	1,697.90
4+60	1,699.00
6+02	1,701.90
7+75	1,706.60

Tailwater conditions for Design Storm.

Discharge	600.00 cfs	Actual Depth	1.48 ft
Velocity	2.95 ft/s		

Name	Description	Discharge	HW Elev.	Velocity
Culvert-1	2-48 inch Circular	257.40 cfs	1,711.39 ft	11.31 ft/s
Weir	Roadway	343.20 cfs	1,711.39 ft	N/A
Total	----------	600.60 cfs	1,711.39 ft	N/A

Culvert Designer/Analyzer Report
Basin J8 Culvert (2) 48" CMPs w/ Overtopping

Component:Culvert-1

Culvert Summary					
Computed Headwater Elev	1,711.39	ft	Discharge	257.40	cfs
Inlet Control HW Elev.	1,711.39	ft	Tailwater Elevation	1,699.38	ft
Outlet Control HW Elev.	1,710.62	ft	Control Type	Inlet Control	
Headwater Depth/Height	1.97				

Grades					
Upstream Invert	1,703.50	ft	Downstream Invert	1,702.50	ft
Length	90.00	ft	Constructed Slope	0.011111	ft/ft

Hydraulic Profile					
Profile	CompositeM2PressureProfile		Depth, Downstream	3.40	ft
Slope Type	Mild		Normal Depth	N/A	ft
Flow Regime	Subcritical		Critical Depth	3.40	ft
Velocity Downstream	11.31	ft/s	Critical Slope	0.025795	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.024	
Section Material	CMP		Span	4.00	ft
Section Size	48 inch		Rise	4.00	ft
Number Sections	2				

Outlet Control Properties					
Outlet Control HW Elev.	1,710.62	ft	Upstream Velocity Head	1.63	ft
Ke	0.20		Entrance Loss	0.33	ft

Inlet Control Properties					
Inlet Control HW Elev.	1,711.39	ft	Flow Control	N/A	
Inlet Type	Mitered to slope		Area Full	25.1	ft^2
K	0.02100		HDS 5 Chart	2	
M	1.33000		HDS 5 Scale	2	
C	0.04630		Equation Form	1	
Y	0.75000				

Culvert Designer/Analyzer Report
Basin J8 Culvert (2) 48" CMPs w/ Overtopping

Component:Weir

Hydraulic Component(s): Roadway					
Discharge	343.20	cfs	Allowable HW Elevation	1,711.39	ft
Roadway Width	50.00	ft	Overtopping Coefficient	2.99	US
Low Point	1,710.50	ft	Headwater Elevation	1,711.39	ft
Discharge Coefficient (Cr)	2.99		Submergence Factor (Kt)	1.00	
Tailwater Elevation	1,699.38	ft			

Sta (ft)	Elev. (ft)
0.00	1,712.00
74.00	1,710.50
105.00	1,711.10
147.00	1,710.50
226.00	1,711.50
301.00	1,710.80
342.00	1,711.50
416.00	1,710.80
454.00	1,711.00
748.00	1,712.00

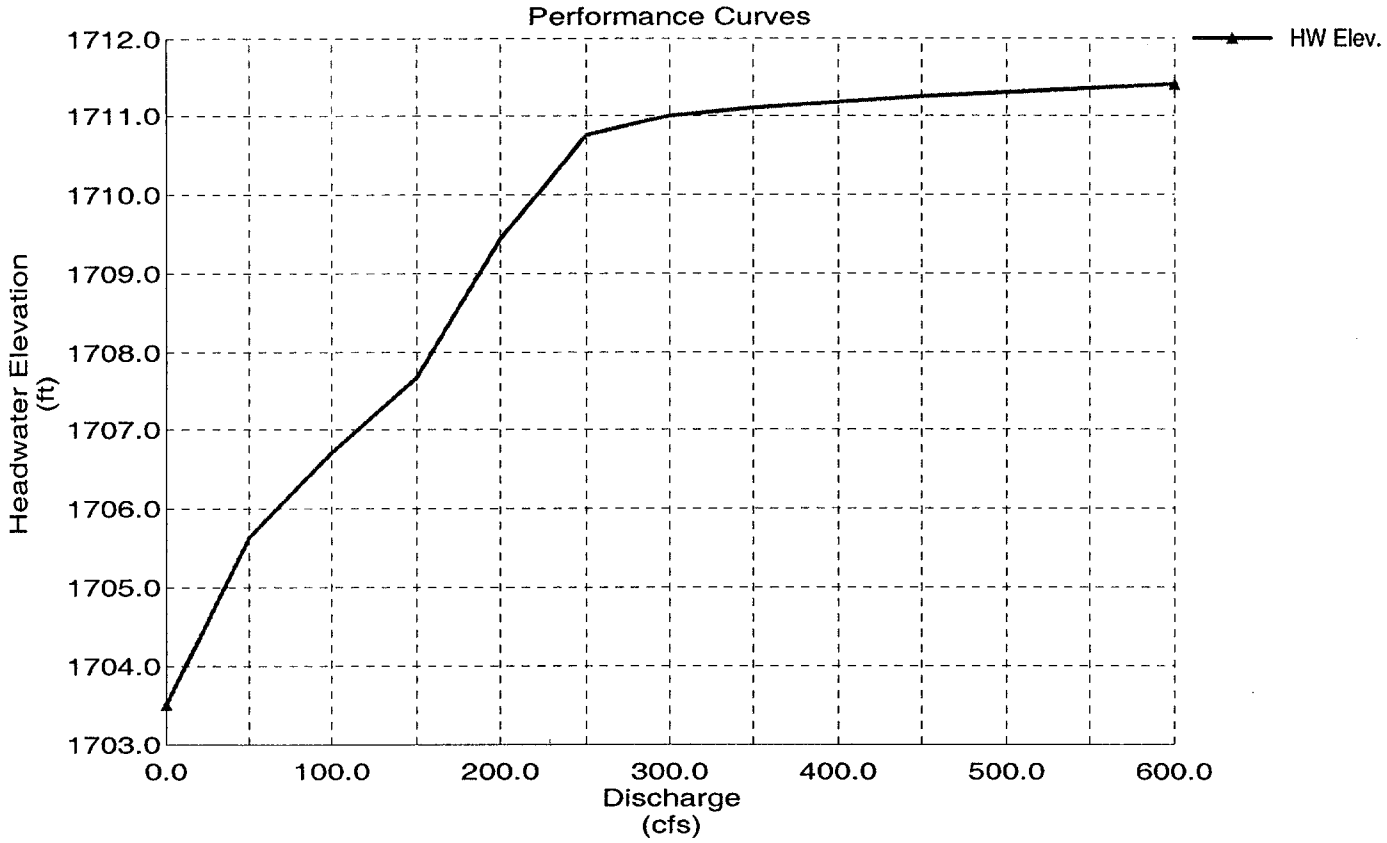
Basin J Culvert
(2) Barrel 6'x4' RCBC under New River Road
* values taken from CulvertMaster Rating Curve

Elev. (ft)	Q100 (cfs)
1686	0
1687	29.4
1688	83.16
1689	152.8
1690	235.2
1691	328.7
1692	415.7
1693	489.1

Performance Curves Report
Basin J8 Culvert (2) 48" CMPs w/ Overtopping

Range Data:

	Minimum	Maximum	Increment
Discharge	0.00	600.00	50.00 cfs



D.5 FLOW SPLITS AND DIVERSION DATA

Appendix D.5 - Diversion Data

There were no diversions in the hydrologic analysis; therefore no diversion data has been supplied.

D.6 HYDROLOGIC CALCULATIONS

Table D.6.1 -- Discharge Comparison Table

Flooding Source and Location	Drainage Area (mi^2)	100-Year Discharge (cfs)					100-Year Discharge per Square Mile (cfs/mi^2)					Regression Equation Standard Error (cfs/mi^2)			
		Hec-1		Regression Equation		FIS Report	Hec-1		Regression Equation		FIS Report	Southwest		Arizona	
		24-Hour Storm	6-Hour Storm	Southwest	Arizona		24-Hour Storm	6-Hour Storm	Southwest	Arizona		10%	90%	37.5%	62.5%
Basin A															
Study Stream - **NRW5**															
Upstream of the CAP Embannkment	0.81	658	692	2,226	1,648	-	812	854	2,748	2,035	-	275	5,221	763	3,306
Basin B															
Study Stream - **NRW10**															
At confluence w/New River	0.56	527	577	1,753	1,203	-	941	1,030	3,130	2,148	-	313	5,948	806	3,491
Basin C															
Study Stream - **NRW15**						-					-				
At confluence w/New River	0.23	355	419	1,050	546	-	1,543	1,822	4,565	2,374		457	8,674	890	3,858
Basin D															
Study Stream - **NRW20**															
Upstream of SR 74	1.91	1,604	1,579	3,604	3,182	-	840	827	1,887	1,666	-	189	3,585	625	2,707
At confluence w/New River	2.17	1,087	1,059	3,896	3,498	-	501	488	1,795	1,612	-	180	3,411	604	2,619
Basin E															
Study Stream - **NRW25**															
At confluence w/New River	0.36	430	486	1,339	817	-	1,194	1,350	3,719	2,269	-	372	7,067	851	3,688
Basin F															
Study Stream - **NRW30**															
At confluence w/New River	0.72	480	503	1,948	1,463	-	667	699	2,706	2,032	-	271	5,141	762	3,302
Basin G															
Study Stream - **NRW35**															
At confluence w/New River	0.23	227	249	971	532	-	987	1,083	4,222	2,313	-	422	8,021	867	3,759
Basin H															
Study Stream - **NRW40**															
At confluence w/New River	0.35	441	482	1,225	776	-	1,260	1,377	3,500	2,217	-	350	6,650	831	3,603
Basin I															
Study Stream - **NRW45**															
At confluence w/New River	0.55	365	383	1,578	1,146	-	664	696	2,869	2,084	-	287	5,451	781	3,386
Basin J															
Study Stream - **NRW50**															
At confluence w/New River	0.82	790	719	1,986	1,595	-	963	877	2,422	1,945	-	242	4,602	729	3,161
Basin K											-				
Study Stream - **NRW55**															
At confluence w/New River	6.75	7,775	6,068	5,911	6,978	-	1,152	899	876	1,034	-	88	1,664	388	1,680
Cline Creek - Tributary C-6															
At Confluence with Tributary X-4A	1.87					1,920					1,027				
At Confluence with Tributary X-3	1.59					1,430					899				
At Confluence with Tributary X-2	1.03					943					916				
Cline Creek - Tributary X-4A															
At Confluence with Tributary C-6	0.28					399					1,425				
Cline Creek - Tributary X-3															
At Confluence with Tributary C-6	0.56					518					925				
Cline Creek - Tributary X-5															
At Confluence with Cline Creek	0.38					301					792				
Cline Creek - Tributary C-8															
At Confluence with Tributary C-6	1.42					2,280					1,606				
Doe Peak Wash															
Above Confluence with Sweat Canyon Wash	7.71					7,335					951				
Doe Peak South Fork Tributary															
Above confluence with Doe Peak Wash	1.68					1,890					1,125				
Deadman Wash Stream No. 7															
At Interstate 17	6.3					4,300					683				
Deadman Wash															
At 31st Avenue	2.49					2,770					1,112				

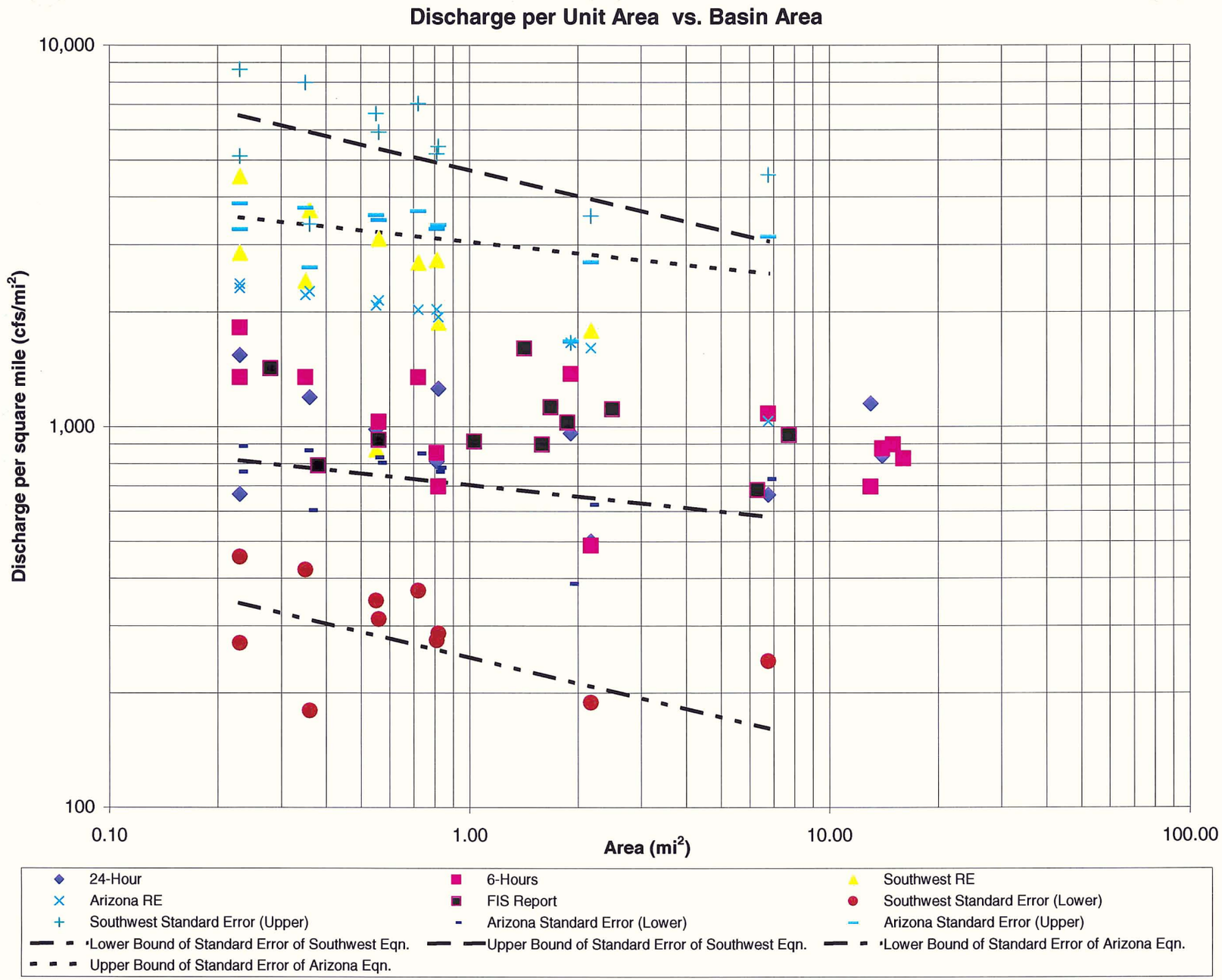

Discharge per Unit Area vs. Basin Area
10,000
1,000
100
Discharge per square mile (cfs/mi²)
0.10
1.00
10.00
100.00
Area (mi²)
24-Hour
6-Hours
Southwest RE
Arizona RE
FIS Report
Southwest Standard Error (Lower)
Southwest Standard Error (Upper)
Arizona Standard Error (Lower)
Arizona Standard Error (Upper)
Lower Bound of Standard Error of Southwest Eqn.
Upper Bound of Standard Error of Southwest Eqn.
Lower Bound of Standard Error of Arizona Eqn.
Upper Bound of Standard Error of Arizona Eqn.

TABLE D.6.2 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	Concentration Point Shapefile I.D.	DRAINAGE AREA (sq. miles)	100-Year PEAK DISCHARGES (cfs) 6-Hour Q_{100} (cfs)	6-Hour Time to Peak (hr)	24-Hour Q_{100} (cfs)	24-Hour Time to Peak (hr)
Basin A						
Study Stream - **NRW5**						
Sub-Basin A9 - upstream LODS	CA7	0.04	94	4.25	81	12.25
Sub-Basin A8	-	0.05	124	4.25	108	12.25
Sub-Basin A7	-	0.05	98	4.33	86	12.33
Sub-Basin A6	-	0.02	54	4.25	46	12.25
Combination CA6M - middle reach[1]	CA6M	0.09	154	4.33	135	12.33
Combination CA6	CA6	0.16	299	4.33	259	12.33
Sub-Basin A5	-	0.05	124	4.25	106	12.25
Combination CA5	CA5	0.22	349	4.50	303	12.42
Sub-Basin A4	-	0.26	369	4.50	323	12.50
Combination CA4 - at Lake Pleasant Rd	CA4	0.48	483	4.83	419	12.83
Sub-Basin A3	-	0.20	315	4.50	277	12.50
Combination CA3	CA3	0.68	641	4.58	596	12.58
Sub-Basin A2	-	0.14	309	4.25	270	12.25
Combination CA2 - at CAP embankment	CA2	0.81	692	4.58	658	12.58
Route Reach 2R[2]	-	0.81	88	6.58	88	14.67
Sub-Basin A1	-	0.05	127	4.17	112	12.17
Combination CA1 - at confluence w/New River	CA1	0.86	118	4.17	120	12.17

Notes:

1) The discharges for this point have been included since CP CA6 combines three flooding sources and CA6M represents the middle reach. The discharge for the middle reach is required since it is one of the study streams. The discharge was obtained by the use of the "HC" card and can be found in the HEC-1 output. Due to the fact that the "HC" card was used, an additional concentration point was not required. However, an additional point was added to the GIS shape file and has and ID of CA6M and is for graphical purposes only.

2) Discharge routed through culvert crossing of the CAP

Basin B
Study Stream - **NRW10**

Sub-Basin B6 - upstream LODS	CB5	0.02	60	4.50	52	12.25
Sub-Basin B5	-	0.17	232	4.67	200	12.67
Combination CB4 - at Lake Pleasant Rd	CB4	0.20	258	4.75	223	12.75
Sub-Basin B4	-	0.04	88	4.25	76	12.25
Combination CB3	CB3	0.23	254	4.92	223	12.92
Sub-Basin B3	-	0.05	96	4.33	83	12.33
Sub-Basin B2	-	0.09	200	4.25	173	12.25
Combination CB2L - Left Branch[1]	CB2L	0.32	254	5.08	241	12.33
Combination CB2	CB2	0.37	349	4.33	323	12.33
Sub-Basin B1	-	0.19	301	4.42	261	12.42
Combination CB1 - at confluence w/New River	CB1	0.56	577	4.58	527	12.58

Notes:
1) The discharges for this point have been included since CP CB2 combines two flooding sources and CB2L represents the left reach. The discharge for the left reach is required since it is the study stream. The discharge was obtained by the use of the "HC" card and can be found in the HEC-1 output. Due to the fact that the "HC" card was used, an additional concentration point was not required. However, an additional point was added to the GIS shapefile and has an ID of CB2L and is for graphical purposes only.

Basin C
Study Stream - **NRW15**

Sub-Basin C4 - upstream LODS	CC3	0.03	81	4.17	70	12.17
Sub-Basin C3	-	0.07	173	4.25	149	12.25
Combination CC2R - Right Branch[1]	CC2R	0.10	205	4.25	175	12.25
Sub-Basin C2	-	0.05	106	4.17	93	12.17
Combination CC2	CC2	0.14	310	4.25	265	12.25
Sub-Basin C1	-	0.09	192	4.25	166	12.25
Combination CC1 - at confluence w/New River	CC1	0.23	419	4.42	355	12.42

Notes:
1) The discharges for this point have been included since CP CC2 combines two flooding sources and CC2R represents the right reach. The discharge for the right reach is required since it is the study stream. The discharge was obtained by the use of the "HC" card and can be found in the HEC-1 output. Due to the fact that the "HC" card was used, an additional concentration point was not required. However, an additional point was added to the GIS shapefile and has an ID of CC2R and is for graphical purposes only.

Basin D
Study Stream - **NRW20, NRW20T5, NRW20T10 (Reaches A& B), NRW20T15**

Sub-Basin D16 - upstream LODS of NRW20T10(B)	CD8	0.44	522	4.67	469	12.67
Sub-Basin D15	-	0.15	282	4.33	249	12.33
Combination CD7- at New River Rd.	CD7	0.60	549	4.83	501	12.83
Sub-Basin D14	-	0.11	219	4.25	196	12.25
Combination CD6	CD6	0.70	558	4.83	518	12.83
Sub-Basin D13 - upstream LODS of NRW20T10(B)	CD11	0.21	361	4.42	316	12.42
Sub-Basin D12	-	0.11	242	4.25	213	12.25
Combination CD10 - at New River Rd.	CD10	0.32	435	4.50	373	12.50
Sub-Basin D11 - upstream LODS of NRW20T5	CD13	0.27	456	4.50	392	12.50
Sub-Basin D10	-	0.11	236	4.33	206	12.33
Combination CD12 - at New River Rd.	CD12	0.38	557	4.50	480	12.58
Sub-Basin D9	-	0.03	75	4.17	66	12.17
Combination CD9R - at confluence w/NRW20T5[1]	CD9R	0.34	435	4.58	376	12.58
Sub-Basin D8	-	0.02	60	4.17	52	12.17
Combination CD9L - at confluence w/NRW20T10(B)[1]	CD9L	0.40	559	4.58	485	12.58
Combination CD9	CD9	0.75	949	4.58	855	12.58
Sub-Basin D7	-	0.18	291	4.42	261	12.42
Combination CD5R - at confluence w/NRW20T10(A)[2]	CD5R	0.88	659	4.58	638	12.58
Sub-Basin D6	-	0.04	117	4.17	102	12.17
Combination CD5L - at confluence w/NRW20(B)[2]	CD5L	0.79	957	4.58	855	12.67
Combination CD5	CD5	1.67	1461	4.67	1472	12.58
Sub-Basin D5 - at SR 74	-	0.16	317	4.25	280	12.25
Sub-Basin D4 - at SR74	-	0.09	149	4.50	130	12.50
Combination CD4	CD4	1.91	1579	4.75	1604	12.67
Route Reach 4R[3]	-	1.91	1046	5.33	1058	13.33
Sub-Basin D3	-	0.10	204	4.33	179	12.33
Combination CD3	CD3	2.01	1055	5.33	1075	13.33
Sub-Basin D2 - at SR74	CD2	0.03	92	4.08	80	12.08
Route Reach 2R[3]	-	0.03	24	4.75	24	12.75
Sub-Basin D1	-	0.12	273	4.25	240	12.25
Combination CD1 - at confluence w/New River	CD1	2.17	1059	5.42	1087	13.42

Notes:
1) The discharges for these points have been included since CP CD9 combines two flooding sources; CD9R and CD9L represent the right reach and left reach, respectively. The discharge for each reach is required since they are study streams. The discharges were obtained by the use of the "HC" card and can be found in the HEC-1 output. Due to the fact that the "HC" card was used, an additional concentration point was not required. However, additional points were added to the GIS shapefile and have an ID of CD9R and CD9L, and are for graphical purposes only.

2) The discharges for these points have been included since CP CD5 combines two flooding sources; CD5R and CD5L represent the right reach and left reach, respectively. The discharge for each reach is required since they are study streams. The discharges were obtained by the use of the "HC" card and can be found in the HEC-1 output. Due to the fact that the "HC" card was used, an additional concentration point was not required. However, additional points were added to the GIS shapefile and have an ID of CD5R and CD5L, and are for graphical purposes only.

3) Discharge routed through culvert crossing of the SR74

Basin E
Study Stream - **NRW25**

Sub-Basin E4 - upstream LODS	CE3	0.07	119	4.33	107	12.33
Sub-Basin E3	-	0.09	180	4.33	160	12.25
Combination CE2R - Right Branch[1]	CE2R	0.16	201	4.42	180	12.42
Sub-Basin E2	-	0.10	182	4.33	163	12.33
Combination CE2	CE2	0.26	378	4.33	337	12.33
Sub-Basin E1	-	0.09	207	4.25	183	12.25
Combination CE1 - at confluence w/New River	CE1	0.36	486	4.42	430	12.42

Notes:
1) The discharges for this point have been included since CP CE2 combines two flooding sources and CE2R represents the right reach. The discharge for the right reach is required since it is the study stream. The discharge was obtained by the use of the "HC" card and can be found in the HEC-1 output. Due to the fact that the "HC" card was used, an additional concentration point was not required. However, an additional point was added to the GIS shapefile and has an ID of CE2R and is for graphical purposes only.

Basin F
Study Stream - **NRW30**

Sub-Basin F4 - upstream LODS	CF4	0.19	273	4.50	248	12.50
Sub-Basin F3	-	0.06	130	4.25	117	12.25
Combination CF3	CF3	0.25	283	4.67	260	12.67
Sub-Basin F2	-	0.30	364	4.58	331	12.58
Combination CF2	CF2	0.55	471	4.75	433	12.75
Sub-Basin F1	-	0.17	252	4.42	231	12.42
Combination CF1 - at confluence w/New River	CF1	0.72	503	5.00	480	12.92

Basin G
Study Stream - **NRW35**

Sub-Basin G3	-	0.02	54	4.17	49	12.17
Sub-Basin G2	-	0.05	106	4.25	96	12.25
Combination CG2 - upstream LODS	CG2	0.07	150	4.17	137	12.17
Sub-Basin G1	-	0.16	246	4.42	224	12.42
Combination CG1 - at confluence w/New River	CG1	0.23	249	4.42	227	12.42

Basin H
Study Stream - **NRW40**

Sub-Basin H2 - upstream LODS	CH2	0.23	373	4.50	339	12.50
Sub-Basin H1	-	0.12	224	4.33	206	12.33
Combination CH1 - at confluence w/New River	CH1	0.35	482	4.50	441	12.50

Basin I
Study Stream - **NRW45**

Sub-Basin I4	CI4	0.26	460	4.42	413	12.42
Sub-Basin I3	-	0.02	73	4.17	66	12.17
Combination CI3 - upstream LODS	CI3	0.28	473	4.50	426	12.50
Sub-Basin I2	-	0.11	235	4.33	216	12.25
Combination CI2 - at gas line road crossing	CI2	0.39	577	4.50	519	12.50
Route Reach 2R[1]	-	0.39	373	5.17	353	13.25
Sub-Basin I1	-	0.15	289	4.33	266	12.33
Combination CI1 - at confluence w/New River	CI1	0.55	383	5.08	365	13.17

1) Discharge routed through culvert crossing of the gas line road

Basin J
Study Stream - **NRW50, NRW50T10 (Reach A & B)**

Sub-Basin J11	-	0.03	74	4.17	68	12.17
Sub-Basin J10	-	0.21	401	4.33	364	12.33
Combination CJ5 - upstream LODS of NRW50(B)	CJ5	0.23	453	4.25	412	12.25
Sub-Basin J9	-	0.01	48	4.08	44	12.08
Combination CJ4	CJ4	0.25	453	4.33	413	12.33
Sub-Basin J8	-	0.10	249	4.17	231	12.17
Combination CJ3 - at New River Rd.	CJ3	0.35	583	4.33	529	12.33
Route Reach 3R[1]	-	0.35	335	4.92	291	12.92
Sub-Basin J7 - upstream LODS of NRW50T5	CJ8	0.05	100	4.33	94	12.33
Sub-Basin J6	-	0.05	107	4.25	100	12.25
Sub-Basin J5	-	0.05	117	4.25	109	12.25
Combination CJ7	CJ7	0.15	252	4.33	237	12.33
Sub-Basin J4	-	0.04	115	4.17	237	12.33
Combination CJ6 - at New River Rd.	CJ6	0.19	282	4.33	264	12.33
Sub-Basin J3	-	0.07	189	4.17	175	12.17
Combination CJ2R - at confluence w/NRW50T5[2]	CJ2R	0.42	340	4.92	304	12.92
Sub-Basin J2	-	0.04	115	4.17	106	12.17
Combination CJ2L - at confluence w/NRW50T10(B)[2]	CJ2L	0.22	322	4.33	301	12.33
Combination CJ2	CJ2	0.64	553	4.50	546	12.42
Sub-Basin J1	-	0.18	336	4.33	313	12.33
Combination CJ1 - at confluence w/New River	CJ1	0.82	719	4.50	790	12.50

1) Discharge routed through culvert crossing of New River Road

2) The discharges for these points have been included since CP CJ2 combines two flooding sources; CJ2R and CJ2L represent the right reach and left reach, respectively. The discharge for each reach is required since they are study streams. The discharges were obtained by the use of the "HC" card and can be found in the HEC-1 output. Due to the fact that the "HC" card was used, an additional concentration point was not required. However, additional points were added to the GIS shapefile and have an ID of CJ2R and CJ2L, and are for graphical purposes only.

Basin K
Study Stream - **NRW55 (Reaches A thru E), NRW55T5, NRW55T10 (Reach A & B), NRW55T15, NRW55T20, NRW55T25, NRW55T30**

Sub-Basin K35	-	0.30	384	4.75	362	12.75
Sub-Basin K34	-	0.22	564	4.17	522	12.17
Sub-Basin K33	-	0.10	221	4.25	204	12.25
Combination CK18 - upstream LODS of NRW55T20	CK18	0.32	772	4.17	713	12.17
Sub-Basin K32	-	0.21	401	4.33	374	12.33
Combination CK13L - at confluence w/NRW55(E)[1]	CK13L	0.53	965	4.33	905	12.33
Sub-Basin K31	CK17	0.04	136	4.08	126	12.08
Sub-Basin K30	-	0.28	705	4.17	651	12.17
Combination CK16 - upstream LODS of NRW55T25	CK16	0.32	831	4.17	766	12.17
Sub-Basin K29	-	0.23	394	4.33	368	12.33
Sub-Basin K28	-	0.35	899	4.17	826	12.17
Sub-Basin K27	-	0.27	550	4.25	509	12.25
Combination CK15 - upstream LODS of NRW55E	CK15	0.62	1333	4.25	1273	12.25
Sub-Basin K26	-	0.13	303	4.25	278	12.25
Combination CK14R - at confluence w/NRW55T25[2]	CK14R	0.75	1463	4.25	1454	12.25
Combination CK14L - at confluence w/NRW55(E)[2]	CK14L	0.54	1075	4.33	1009	12.33
Combination CK14	CK14	1.29	2209	4.33	2422	12.33
Sub-Basin K25	-	0.42	664	4.50	623	12.50
Combination CK13R - at confluence w/NRW55T20[1]	CK13R	1.72	2338	4.58	2587	12.50
Combination CK13	CK13	2.24	2930	4.50	3375	12.50
Sub-Basin K24	-	0.32	800	4.17	741	12.17
Sub-Basin K23	-	0.08	233	4.17	215	12.17
Combination CK21 - upstream LODS of NRW55T15	CK21	0.40	1032	4.17	952	12.17
Sub-Basin K22	-	0.63	940	4.42	912	12.42
Combination CK20	CK20	1.03	1425	4.50	1488	12.50
Sub-Basin K21	-	0.13	255	4.25	243	12.25
Combination CK19	CK19	1.16	1500	4.50	1594	12.50
Sub-Basin K20	-	0.18	356	4.33	329	12.33
Combination CK12L - at confluence w/NRW55(D)[3]	CK12L	1.34	1638	4.58	1755	12.58
Sub-Basin K19	-	0.11	196	4.33	184	12.33
Combination CK12R - at confluence w/NRW55T15[3]	CK12R	2.35	2861	4.67	3272	12.58
Combination CK12	CK12	3.69	4094	4.67	4996	12.58
Sub-Basin K18	-	0.13	258	4.33	238	12.33
Sub-Basin K17	-	0.16	263	4.50	244	12.50
Combination CK23 - upstream LODS of NRW55T30	CK23	0.29	508	4.42	469	12.42
Sub-Basin K16	-	0.22	373	4.50	349	12.50
Combination CK22 - at confluence w/NRW55(C)	CK22	0.51	612	4.67	592	12.67
Sub-Basin K15	-	0.23	385	4.50	363	12.50
Sub-Basin K14	-	0.30	604	4.33	553	12.33
Sub-Basin K13	-	0.08	171	4.33	157	12.25
Combination CK24	CK24	0.38	773	4.33	706	12.33
Sub-Basin K12	-	0.12	339	4.17	310	12.17
Sub-Basin K11	-	0.31	695	4.25	637	12.25
Combination CK11 - upstream LODS of NRW55T10(B)	CK11	0.43	1013	4.17	928	12.17

Sub-Basin K10	-	0.42	759	4.33	700	12.33
Combination CK10	CK10	0.85	1378	4.33	1395	12.33
Sub-Basin K9 - upstream LODS of NRW55T5	CK9	0.08	236	4.17	219	12.17
Sub-Basin K8	-	0.04	124	4.17	115	12.17
Combination CK8	CK8	0.12	251	4.17	235	12.17
Sub-Basin K7	-	0.07	123	4.17	120	12.17
Combination CK7 - at confluence w/NRW55T5	CK7	1.04	1335	4.50	1372	12.50
Sub-Basin K6	-	0.08	208	4.17	195	12.17
Combination CK6	CK6	1.12	1350	4.58	1393	12.50
Sub-Basin K5	-	0.05	131	4.17	124	12.17
Combination CK5	CK5	1.17	1320	4.67	1365	12.67
Sub-Basin K4	-	0.30	585	4.33	551	12.33
Combination CK4	CK4	1.86	1815	4.75	1951	12.75
Sub-Basin K3	-	0.07	157	4.25	151	12.25
Combination CK3L - at confluence w/NRW55(B)[4]	CK3L	1.93	1769	4.83	1915	12.83
Combination CK3R - at confluence w/NRW55T10(A)[4]	CK3R	4.44	4551	4.83	5670	12.75
Combination CK3	CK3	6.37	5876	4.83	7510	12.75
Sub-Basin K2	-	0.00	3	4.08	3	12.08
Combination CK2 - at New River Rd.	CK2	6.67	6130	4.83	7869	12.75
Sub-Basin K1	-	0.08	220	4.17	207	12.17
Combination CK1 - at confluence w/New River	CK1	6.75	6068	4.92	7775	12.83

1) The discharges for these points have been included since CP CK13 combines two flooding sources; CK13R and CK13L represent the right reach and left reach, respectively. The discharge for each reach is required since they are study streams. The discharges were obtained by the use of the "HC" card and can be found in the HEC-1 output. Due to the fact that the "HC" card was used, an additional concentration point was not required. However, additional points were added to the GIS shapefile and have an ID of CK13R and CK13L, and are for graphical purposes only.

2) The discharges for these points have been included since CP CK14 combines two flooding sources; CK14R and CK14L represent the right reach and left reach, respectively. The discharge for each reach is required since they are study streams. The discharges were obtained by the use of the "HC" card and can be found in the HEC-1 output. Due to the fact that the "HC" card was used, an additional concentration point was not required. However, additional points were added to the GIS shapefile and have an ID of CK14R and CK14L, and are for graphical purposes only.

3) The discharges for these points have been included since CP CK12 combines two flooding sources; CK12R and CK12L represent the right reach and left reach, respectively. The discharge for each reach is required since they are study streams. The discharges were obtained by the use of the "HC" card and can be found in the HEC-1 output. Due to the fact that the "HC" card was used, an additional concentration point was not required. However, additional points were added to the GIS shapefile and have an ID of CK12R and CK12L, and are for graphical purposes only.

4) The discharges for these points have been included since CP CK3 combines two flooding sources; CK3R and CK3L represent the right reach and left reach, respectively. The discharge for each reach is required since they are study streams. The discharges were obtained by the use of the "HC" card and can be found in the HEC-1 output. Due to the fact that the "HC" card was used, an additional concentration point was not required. However, additional points were added to the GIS shapefile and have an ID of CK3R and CK3L, and are for graphical purposes only.

Lag Time

Calculations

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*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:13:14 2004

*******************************************************************

BASIN A9    AREA 0.04 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.226 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.706 mi
Lca        Length to watershed centroid  0.286 mi
S          Max flow slope      36.960 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:13:44 2004

*******************************************************************

BASIN A8    AREA 0.05 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.214 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.631 mi
Lca        Length to watershed centroid  0.307 mi
S          Max flow slope      44.330 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:14:12 2004

*******************************************************************

BASIN A7    AREA 0.05 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.254 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.823 mi
Lca        Length to watershed centroid  0.331 mi
S          Max flow slope      36.960 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:14:31 2004

*******************************************************************

BASIN A6    AREA 0.02 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.189 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.609 mi
Lca        Length to watershed centroid  0.230 mi
S          Max flow slope      44.346 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:15:28 2004

*******************************************************************

BASIN A5    AREA 0.05 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.216 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.759 mi
Lca        Length to watershed centroid  0.268 mi
S          Max flow slope      47.520 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:15:49 2004

*******************************************************************
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```
BASIN A4    AREA 0.26 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.376 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.364 mi
Lca        Length to watershed centroid  0.608 mi
S          Max flow slope      45.834 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:16:08 2004

*******************************************************************

BASIN A3    AREA 0.20 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.359 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.427 mi
Lca        Length to watershed centroid  0.527 mi
S          Max flow slope      47.520 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:16:31 2004

*******************************************************************

BASIN A2    AREA 0.14 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.189 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.740 mi
Lca        Length to watershed centroid  0.226 mi
S          Max flow slope      63.360 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:16:53 2004

*******************************************************************

BASIN A1    AREA 0.05 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.152 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.509 mi
Lca        Length to watershed centroid  0.244 mi
S          Max flow slope      105.601 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:25:02 2004

*******************************************************************

BASIN B6    AREA 0.02 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.209 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.605 mi
Lca        Length to watershed centroid  0.273 mi
S          Max flow slope      36.960 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:25:20 2004

*******************************************************************

BASIN B5    AREA 0.17 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.530 hrs
```

Variables:

```
n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       2.156 mi
Lca        Length to watershed centroid  0.835 mi
S          Max flow slope      36.960 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:25:35 2004

*******************************************************************
```

BASIN B4 AREA 0.04 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.188 hrs

Variables:

```
n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.572 mi
Lca        Length to watershed centroid  0.236 mi
S          Max flow slope      42.240 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:26:04 2004

*******************************************************************
```

BASIN B3 AREA 0.05 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.267 hrs

Variables:

```
n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.874 mi
Lca        Length to watershed centroid  0.401 mi
S          Max flow slope      47.520 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:26:27 2004

*******************************************************************
```

BASIN B2 AREA 0.09 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.186 hrs

Variables:

```
n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.586 mi
Lca        Length to watershed centroid  0.237 mi
S          Max flow slope      47.520 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:26:39 2004

*******************************************************************
```

BASIN B1 AREA 0.19 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.343 hrs

Variables:

```
n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.291 mi
Lca        Length to watershed centroid  0.562 mi
S          Max flow slope      55.804 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:28:27 2004

*******************************************************************
```

BASIN C4 AREA 0.03 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.142 hrs

Variables:

```
n          exponent  0.390
Ct         Time to peak coefficient      1.420
```

```
L          Length of overland flow       0.400 mi
Lca        Length to watershed centroid  0.176 mi
S          Max flow slope      48.954 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:28:50 2004

*********************************************************************

BASIN C3    AREA 0.07 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.193 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.648 mi
Lca        Length to watershed centroid  0.278 mi
S          Max flow slope      66.037 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:29:31 2004

*********************************************************************

BASIN C2    AREA 0.05 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.172 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.567 mi
Lca        Length to watershed centroid  0.242 mi
S          Max flow slope      68.640 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:29:45 2004

*********************************************************************

BASIN C1    AREA 0.09 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.201 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.684 mi
Lca        Length to watershed centroid  0.303 mi
S          Max flow slope      71.249 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:34:06 2004

*********************************************************************

BASIN D16    AREA 0.44 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.513 hrs
—:ÈËG["ARòêÌÉ./A
Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       2.098 mi
Lca        Length to watershed centroid  0.985 mi
S          Max flow slope      57.369 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:34:55 2004

*********************************************************************

BASIN D15    AREA 0.15 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.258 hrs
—:ÈËG["ARòêÌÉ./A
Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.024 mi
Lca        Length to watershed centroid  0.375 mi
S          Max flow slope      67.537 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
```

Mon Apr 26 21:35:11 2004

****

BASIN D14 AREA 0.11 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.210 hrs
—:ÈÊG["ARòêÎÉ./A
Variables:

n exponent 0.390
Ct Time to peak coefficient 1.420
L Length of overland flow 0.786 mi
Lca Length to watershed centroid 0.300 mi
S Max flow slope 73.365 ft/mi
****
Lag Time / Time of Concentration Data Computed in WMS
Mon Apr 26 21:35:32 2004

****

BASIN D13 AREA 0.21 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.318 hrs
—:ÈÊG["ARòêÎÉ./A
Variables:

n exponent 0.390
Ct Time to peak coefficient 1.420
L Length of overland flow 1.175 mi
Lca Length to watershed centroid 0.533 mi
S Max flow slope 61.381 ft/mi
****
Lag Time / Time of Concentration Data Computed in WMS
Mon Apr 26 21:35:48 2004

****

BASIN D12 AREA 0.11 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.204 hrs
—:ÈÊG["ARòêÎÉ./A
Variables:

n exponent 0.390
Ct Time to peak coefficient 1.420
L Length of overland flow 0.693 mi
Lca Length to watershed centroid 0.284 mi
S Max flow slope 59.628 ft/mi
****
Lag Time / Time of Concentration Data Computed in WMS
Mon Apr 26 21:36:12 2004

****

BASIN D11 AREA 0.27 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.397 hrs
—:ÈÊG["ARòêÎÉ./A
Variables:

n exponent 0.390
Ct Time to peak coefficient 1.420
L Length of overland flow 1.425 mi
Lca Length to watershed centroid 0.708 mi
S Max flow slope 51.254 ft/mi
****
Lag Time / Time of Concentration Data Computed in WMS
Mon Apr 26 21:36:38 2004

****

BASIN D10 AREA 0.11 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.238 hrs
—:ÈÊG["ARòêÎÉ./A
Variables:

n exponent 0.390
Ct Time to peak coefficient 1.420
L Length of overland flow 0.873 mi
Lca Length to watershed centroid 0.335 mi
S Max flow slope 58.590 ft/mi
****
Lag Time / Time of Concentration Data Computed in WMS
Mon Apr 26 21:37:11 2004

****

BASIN D9 AREA 0.03 sq mi

Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.110 hrs
—:ÈÊG["ARòêÎÉ./A
Variables:

n exponent 0.390
Ct Time to peak coefficient 1.420
L Length of overland flow 0.342 mi
Lca Length to watershed centroid 0.151 mi
S Max flow slope 97.496 ft/mi
****
Lag Time / Time of Concentration Data Computed in WMS
Mon Apr 26 21:37:31 2004

****

BASIN D8 AREA 0.02 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.107 hrs
—:ÈÊG["ARòêÎÉ./A
Variables:

n exponent 0.390
Ct Time to peak coefficient 1.420
L Length of overland flow 0.382 mi
Lca Length to watershed centroid 0.109 mi
S Max flow slope 72.225 ft/mi
****
Lag Time / Time of Concentration Data Computed in WMS
Mon Apr 26 21:37:49 2004

****

BASIN D7 AREA 0.18 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.304 hrs
—:ÈÊG["ARòêÎÉ./A
Variables:

n exponent 0.390
Ct Time to peak coefficient 1.420
L Length of overland flow 1.235 mi
Lca Length to watershed centroid 0.461 mi
S Max flow slope 63.360 ft/mi
****
Lag Time / Time of Concentration Data Computed in WMS
Mon Apr 26 21:38:07 2004

****

BASIN D6 AREA 0.04 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.130 hrs
—:ÈÊG["ARòêÎÉ./A
Variables:

n exponent 0.390
Ct Time to peak coefficient 1.420
L Length of overland flow 0.416 mi
Lca Length to watershed centroid 0.184 mi
S Max flow slope 90.157 ft/mi
****
Lag Time / Time of Concentration Data Computed in WMS
Mon Apr 26 21:38:38 2004

****

BASIN D5 AREA 0.16 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.220 hrs
—:ÈÊG["ARòêÎÉ./A
Variables:

n exponent 0.390
Ct Time to peak coefficient 1.420
L Length of overland flow 0.868 mi
Lca Length to watershed centroid 0.283 mi
S Max flow slope 62.028 ft/mi
****
Lag Time / Time of Concentration Data Computed in WMS
Mon Apr 26 21:39:01 2004

****

BASIN D4 AREA 0.09 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.369 hrs
—:ÈÊG["ARòêÎÉ./A
Variables:

```
n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.285 mi
Lca        Length to watershed centroid  0.661 mi
S          Max flow slope      52.800 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:39:22 2004

*******************************************************************

BASIN D3    AREA 0.10 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.262 hrs
—:ÈÊG["ARòêÌÉ./A
Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.866 mi
Lca        Length to watershed centroid  0.446 mi
S          Max flow slope      63.360 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:39:55 2004

*******************************************************************

BASIN D2    AREA 0.03 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.075 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.251 mi
Lca        Length to watershed centroid  0.050 mi
S          Max flow slope      42.240 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:40:29 2004

*******************************************************************

BASIN D1    AREA 0.12 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.196 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.675 mi
Lca        Length to watershed centroid  0.261 mi
S          Max flow slope      58.199 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:42:11 2004

*******************************************************************

BASIN E4    AREA 0.07 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.254 hrs
—:ÈÊx "ARòêÌo/A
Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.142 mi
Lca        Length to watershed centroid  0.287 mi
S          Max flow slope      53.273 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:42:43 2004

*******************************************************************

BASIN E3    AREA 0.10 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.237 hrs
—:ÈÊx "ARòêÌo/A
Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.748 mi
Lca        Length to watershed centroid  0.346 mi
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S          Max flow slope      47.520 ft/mi
*****************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:42:55 2004

*****************************************************************

BASIN E2    AREA 0.11 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.271 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.938 mi
Lca        Length to watershed centroid  0.412 mi
S          Max flow slope      52.800 ft/mi
*****************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:43:10 2004

*****************************************************************

BASIN E1    AREA 0.09 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.187 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.736 mi
Lca        Length to watershed centroid  0.222 mi
S          Max flow slope      63.360 ft/mi
*****************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:44:36 2004

*****************************************************************

BASIN F4    AREA 0.19 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.390 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.400 mi
Lca        Length to watershed centroid  0.713 mi
S          Max flow slope      54.932 ft/mi
*****************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:44:51 2004

*****************************************************************

BASIN F3    AREA 0.06 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.178 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.560 mi
Lca        Length to watershed centroid  0.257 mi
S          Max flow slope      64.159 ft/mi
*****************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:45:04 2004

*****************************************************************

BASIN F2    AREA 0.30 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.420 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.654 mi
Lca        Length to watershed centroid  0.745 mi
S          Max flow slope      56.983 ft/mi
*****************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:45:19 2004
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*****************************************************************

BASIN F1    AREA 0.17 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.340 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.272 mi
Lca        Length to watershed centroid  0.557 mi
S          Max flow slope      55.824 ft/mi
*****************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:46:57 2004

*****************************************************************

BASIN G3    AREA 0.02 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.123 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.382 mi
Lca        Length to watershed centroid  0.148 mi
S          Max flow slope      64.977 ft/mi
*****************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:47:25 2004

*****************************************************************

BASIN G2    AREA 0.05 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.199 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.648 mi
Lca        Length to watershed centroid  0.276 mi
S          Max flow slope      55.223 ft/mi
*****************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:47:39 2004

*****************************************************************

BASIN G1    AREA 0.16 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.316 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.123 mi
Lca        Length to watershed centroid  0.568 mi
S          Max flow slope      65.793 ft/mi
*****************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:48:46 2004

*****************************************************************

BASIN H2    AREA 0.23 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.359 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.517 mi
Lca        Length to watershed centroid  0.541 mi
S          Max flow slope      56.674 ft/mi
*****************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:49:01 2004

*****************************************************************

BASIN H1    AREA 0.12 sq mi
Equations:
```

```
Lag Time   Ct * (L * Lca/sqrt(S))^n      0.245 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.934 mi
Lca        Length to watershed centroid  0.395 mi
S          Max flow slope      81.679 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:54:31 2004

*********************************************************************

BASIN I4    AREA 0.26 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.337 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.350 mi
Lca        Length to watershed centroid  0.591 mi
S          Max flow slope      73.920 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:54:50 2004

*********************************************************************

BASIN I3    AREA 0.02 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.135 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.453 mi
Lca        Length to watershed centroid  0.155 mi
S          Max flow slope      63.360 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:55:09 2004

*********************************************************************

BASIN I2    AREA 0.11 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.234 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.939 mi
Lca        Length to watershed centroid  0.296 mi
S          Max flow slope      58.080 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:55:25 2004

*********************************************************************

BASIN I1    AREA 0.15 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.243 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.852 mi
Lca        Length to watershed centroid  0.408 mi
S          Max flow slope      75.798 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:57:33 2004

*********************************************************************

BASIN J11    AREA 0.03 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.127 hrs

Variables:

n          exponent  0.390
```

```
Ct          Time to peak coefficient      1.420
L           Length of overland flow       0.414 mi
Lca         Length to watershed centroid  0.147 mi
S           Max flow slope       63.360 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:58:00 2004

*******************************************************************

BASIN J10    AREA 0.21 sq mi
Equations:

Lag Time    Ct * (L * Lca/sqrt(S))^n      0.269 hrs

Variables:

n           exponent  0.390
Ct          Time to peak coefficient      1.420
L           Length of overland flow       1.320 mi
Lca         Length to watershed centroid  0.680 mi
S           Max flow slope       299.629 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:58:56 2004

*******************************************************************

BASIN J9    AREA 0.01 sq mi
Equations:

Lag Time    Ct * (L * Lca/sqrt(S))^n      0.076 hrs

Variables:

n           exponent  0.390
Ct          Time to peak coefficient      1.420
L           Length of overland flow       0.265 mi
Lca         Length to watershed centroid  0.066 mi
S           Max flow slope       73.920 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:59:12 2004

*******************************************************************

BASIN J8    AREA 0.10 sq mi
Equations:

Lag Time    Ct * (L * Lca/sqrt(S))^n      0.170 hrs

Variables:

n           exponent  0.390
Ct          Time to peak coefficient      1.420
L           Length of overland flow       0.611 mi
Lca         Length to watershed centroid  0.208 mi
S           Max flow slope       63.360 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:59:26 2004

*******************************************************************

BASIN J7    AREA 0.05 sq mi
Equations:

Lag Time    Ct * (L * Lca/sqrt(S))^n      0.252 hrs

Variables:

n           exponent  0.390
Ct          Time to peak coefficient      1.420
L           Length of overland flow       0.808 mi
Lca         Length to watershed centroid  0.416 mi
S           Max flow slope       58.080 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:59:43 2004

*******************************************************************

BASIN J6    AREA 0.05 sq mi
Equations:

Lag Time    Ct * (L * Lca/sqrt(S))^n      0.195 hrs

Variables:

n           exponent  0.390
Ct          Time to peak coefficient      1.420
L           Length of overland flow       0.632 mi
Lca         Length to watershed centroid  0.289 mi
S           Max flow slope       63.360 ft/mi
*******************************************************************
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```
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 21:59:59 2004

*********************************************************************

BASIN J5    AREA 0.05 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.206 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.688 mi
Lca        Length to watershed centroid  0.306 mi
S          Max flow slope      65.137 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 22:00:12 2004

*********************************************************************

BASIN J4    AREA 0.04 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.104 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.351 mi
Lca        Length to watershed centroid  0.109 mi
S          Max flow slope      70.061 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 22:00:28 2004

*********************************************************************

BASIN J3    AREA 0.07 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.165 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.548 mi
Lca        Length to watershed centroid  0.247 mi
S          Max flow slope      83.261 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 22:00:44 2004

*********************************************************************

BASIN J2    AREA 0.04 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.127 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.401 mi
Lca        Length to watershed centroid  0.178 mi
S          Max flow slope      87.503 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Mon Apr 26 22:00:57 2004

*********************************************************************

BASIN J1    AREA 0.18 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.269 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.256 mi
Lca        Length to watershed centroid  0.356 mi
S          Max flow slope      73.670 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:22:30 2004

*********************************************************************
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```
BASIN K35    AREA 0.30 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.556 hrs
—:ÈÊ‹-"ARòêÎmÕ/A
Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       2.350 mi
Lca        Length to watershed centroid  1.036 mi
S          Max flow slope      52.800 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:23:03 2004

*******************************************************************

BASIN K34    AREA 0.23 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.166 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.895 mi
Lca        Length to watershed centroid  0.388 mi
S          Max flow slope      533.280 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:23:23 2004

*******************************************************************

BASIN K33    AREA 0.10 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.214 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.063 mi
Lca        Length to watershed centroid  0.574 mi
S          Max flow slope      444.999 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:23:42 2004

*******************************************************************

BASIN K32    AREA 0.21 sq mi
Equations:

Time to Peak Coefficient       -0.00371 * Ia + 0.163         0.162
Lag Time   Ct * (L * Lca/sqrt(S))^0.48   0.176 hrs

Variables:

Ct         Time to Peak Coefficient (Ct)           0.162
L          Watershed length    1.166 mi
Lca        Length to watershed centroid  0.404 mi
S          Weighted average slope along stream     0.018
Ia         Percent impervious cover      0.346
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:24:03 2004

*******************************************************************

BASIN K31    AREA 0.04 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.083 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.470 mi
Lca        Length to watershed centroid  0.189 mi
S          Max flow slope      1224.960 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:24:16 2004

*******************************************************************

BASIN K30    AREA 0.28 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.155 hrs
```

Variables:

```
n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.944 mi
Lca        Length to watershed centroid  0.391 mi
S          Max flow slope      838.196 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:24:32 2004

*******************************************************************

BASIN K29    AREA 0.23 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.309 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.726 mi
Lca        Length to watershed centroid  1.035 mi
S          Max flow slope      575.520 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:24:48 2004

*******************************************************************

BASIN K28    AREA 0.35 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.159 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.192 mi
Lca        Length to watershed centroid  0.311 mi
S          Max flow slope      748.286 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:25:02 2004

*******************************************************************

BASIN K27    AREA 0.27 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.252 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.621 mi
Lca        Length to watershed centroid  0.660 mi
S          Max flow slope      586.080 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:25:18 2004

*******************************************************************

BASIN K26    AREA 0.13 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.215 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.071 mi
Lca        Length to watershed centroid  0.410 mi
S          Max flow slope      227.040 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:25:30 2004

*******************************************************************

BASIN K25    AREA 0.42 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.393 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
```

```
L          Length of overland flow       1.584 mi
Lca        Length to watershed centroid  0.777 mi
S          Max flow slope      80.468 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:25:49 2004

*******************************************************************

BASIN K24    AREA 0.32 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.158 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.912 mi
Lca        Length to watershed centroid  0.402 mi
S          Max flow slope      761.537 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:26:02 2004

*******************************************************************

BASIN K23    AREA 0.08 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.109 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.711 mi
Lca        Length to watershed centroid  0.249 mi
S          Max flow slope      1214.451 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:26:15 2004

*******************************************************************

BASIN K22    AREA 0.63 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.359 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       2.116 mi
Lca        Length to watershed centroid  0.962 mi
S          Max flow slope      348.480 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:26:29 2004

*******************************************************************

BASIN K21    AREA 0.13 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.238 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.123 mi
Lca        Length to watershed centroid  0.453 mi
S          Max flow slope      179.520 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:26:57 2004

*******************************************************************

BASIN K21    AREA 0.13 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.238 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.123 mi
Lca        Length to watershed centroid  0.453 mi
S          Max flow slope      179.520 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
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Wed Apr 28 21:27:14 2004

****

BASIN K20 AREA 0.18 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.287 hrs

Variables:

n	exponent 0.390	
Ct	Time to peak coefficient	1.420
L	Length of overland flow	1.326 mi
Lca	Length to watershed centroid	0.471 mi
S	Max flow slope	103.096 ft/mi

****

Lag Time / Time of Concentration Data Computed in WMS
Wed Apr 28 21:27:34 2004

****

BASIN K19 AREA 0.11 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.294 hrs

Variables:

n	exponent 0.390	
Ct	Time to peak coefficient	1.420
L	Length of overland flow	1.422 mi
Lca	Length to watershed centroid	0.460 mi
S	Max flow slope	100.320 ft/mi

****

Lag Time / Time of Concentration Data Computed in WMS
Wed Apr 28 21:27:47 2004

****

BASIN K18 AREA 0.13 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.291 hrs

Variables:

n	exponent 0.390	
Ct	Time to peak coefficient	1.420
L	Length of overland flow	1.135 mi
Lca	Length to watershed centroid	0.480 mi
S	Max flow slope	73.451 ft/mi

****

Lag Time / Time of Concentration Data Computed in WMS
Wed Apr 28 21:28:01 2004

****

BASIN K17 AREA 0.16 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.390 hrs

Variables:

n	exponent 0.390	
Ct	Time to peak coefficient	1.420
L	Length of overland flow	1.580 mi
Lca	Length to watershed centroid	0.698 mi
S	Max flow slope	66.721 ft/mi

****

Lag Time / Time of Concentration Data Computed in WMS
Wed Apr 28 21:28:14 2004

****

BASIN K16 AREA 0.23 sq mi
Equations:

Lag Time Ct * (L * Lca/sqrt(S))^n 0.373 hrs

Variables:

n	exponent 0.390	
Ct	Time to peak coefficient	1.420
L	Length of overland flow	1.435 mi
Lca	Length to watershed centroid	0.628 mi
S	Max flow slope	56.444 ft/mi

****

Lag Time / Time of Concentration Data Computed in WMS
Wed Apr 28 21:28:39 2004

****

BASIN K15 AREA 0.23 sq mi

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Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.365 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.576 mi
Lca        Length to watershed centroid  0.574 mi
S          Max flow slope      63.360 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:28:56 2004

*********************************************************************

BASIN K14    AREA 0.30 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.270 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.238 mi
Lca        Length to watershed centroid  0.599 mi
S          Max flow slope      200.640 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:29:16 2004

*********************************************************************

BASIN K13    AREA 0.08 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.258 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.443 mi
Lca        Length to watershed centroid  0.689 mi
S          Max flow slope      448.800 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:29:37 2004

*********************************************************************

BASIN K12    AREA 0.12 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.129 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.731 mi
Lca        Length to watershed centroid  0.264 mi
S          Max flow slope      607.604 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:29:50 2004

*********************************************************************

BASIN K11    AREA 0.31 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.197 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.141 mi
Lca        Length to watershed centroid  0.444 mi
S          Max flow slope      471.609 ft/mi
*********************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:30:03 2004

*********************************************************************

BASIN K10    AREA 0.42 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.279 hrs

Variables:
```

```
n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.518 mi
Lca        Length to watershed centroid  0.748 mi
S          Max flow slope      395.602 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:30:19 2004

*******************************************************************

BASIN K9    AREA 0.08 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.120 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.712 mi
Lca        Length to watershed centroid  0.239 mi
S          Max flow slope      670.115 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:30:33 2004

*******************************************************************

BASIN K8    AREA 0.04 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.123 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.478 mi
Lca        Length to watershed centroid  0.176 mi
S          Max flow slope      147.840 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:30:58 2004

*******************************************************************

BASIN K7    AREA 0.07 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.180 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.649 mi
Lca        Length to watershed centroid  0.314 mi
S          Max flow slope      121.440 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:31:16 2004

*******************************************************************

BASIN K6    AREA 0.08 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.148 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.569 mi
Lca        Length to watershed centroid  0.209 mi
S          Max flow slope      110.880 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:31:30 2004

*******************************************************************

BASIN K5    AREA 0.05 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.160 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.504 mi
Lca        Length to watershed centroid  0.243 mi
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```
S          Max flow slope      79.424 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:31:45 2004

*******************************************************************

BASIN K4    AREA 0.30 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.276 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       1.285 mi
Lca        Length to watershed centroid  0.426 mi
S          Max flow slope      97.000 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:31:57 2004

*******************************************************************

BASIN K3    AREA 0.07 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.196 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.708 mi
Lca        Length to watershed centroid  0.289 mi
S          Max flow slope      78.755 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Thu Apr 29 17:21:47 2004

*******************************************************************

BASIN CK2    AREA 0.0009 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.020 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.080 mi
Lca        Length to watershed centroid  0.014 mi
S          Max flow slope      273.507 ft/mi
*******************************************************************
       Lag Time / Time of Concentration Data Computed in WMS
                        Wed Apr 28 21:32:21 2004

*******************************************************************

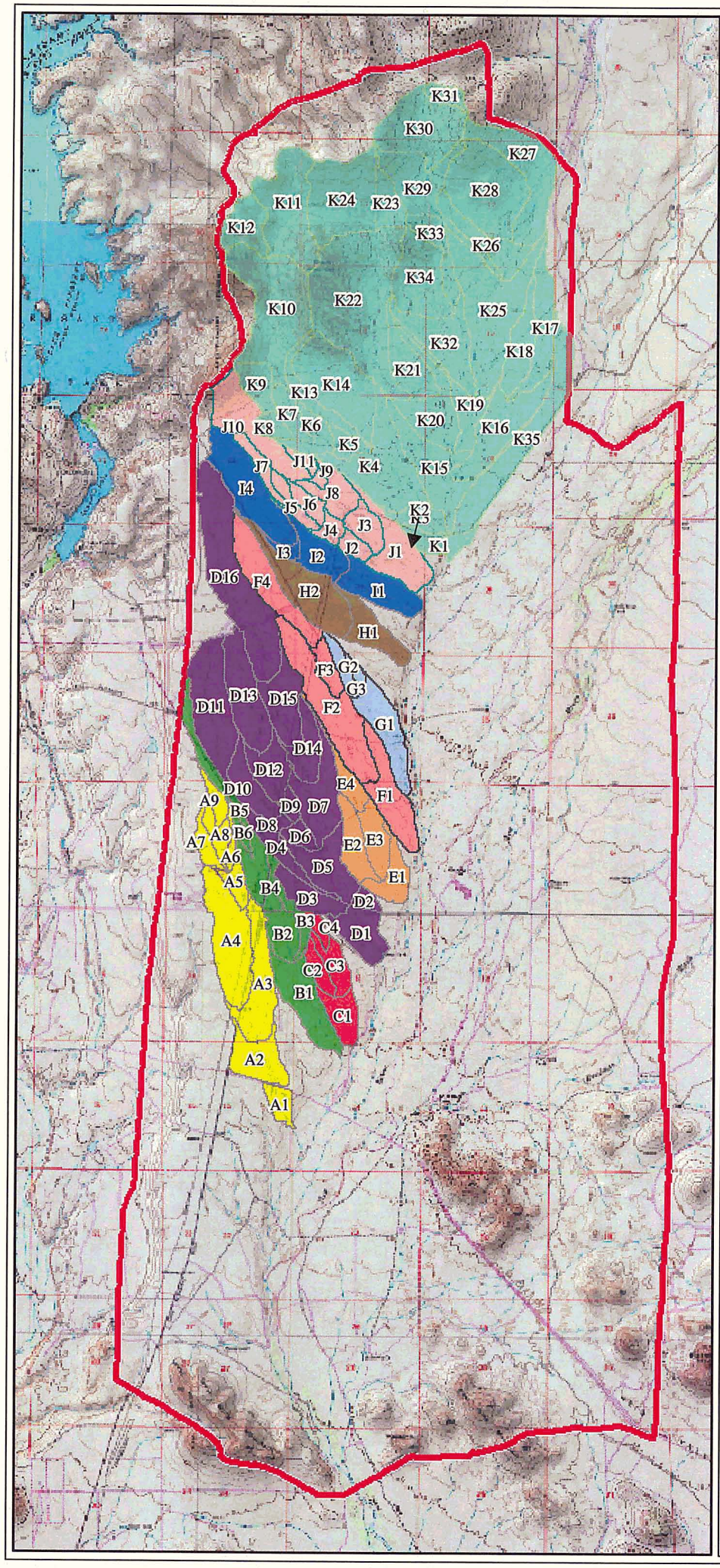
BASIN K1    AREA 0.08 sq mi
Equations:

Lag Time   Ct * (L * Lca/sqrt(S))^n      0.128 hrs

Variables:

n          exponent  0.390
Ct         Time to peak coefficient      1.420
L          Length of overland flow       0.544 mi
Lca        Length to watershed centroid  0.142 mi
S          Max flow slope      99.158 ft/mi
```

New River FDS Appendix A: Basins Overview



LEGEND

- Project Boundary

Basin ID

- Basin A
- Basin B
- Basin C
- Basin D
- Basin E
- Basin F
- Basin G
- Basin H
- Basin I
- Basin J
- Basin K

N

0 1,500 3,000 6,000
Feet

Scale: 1" = 6000'

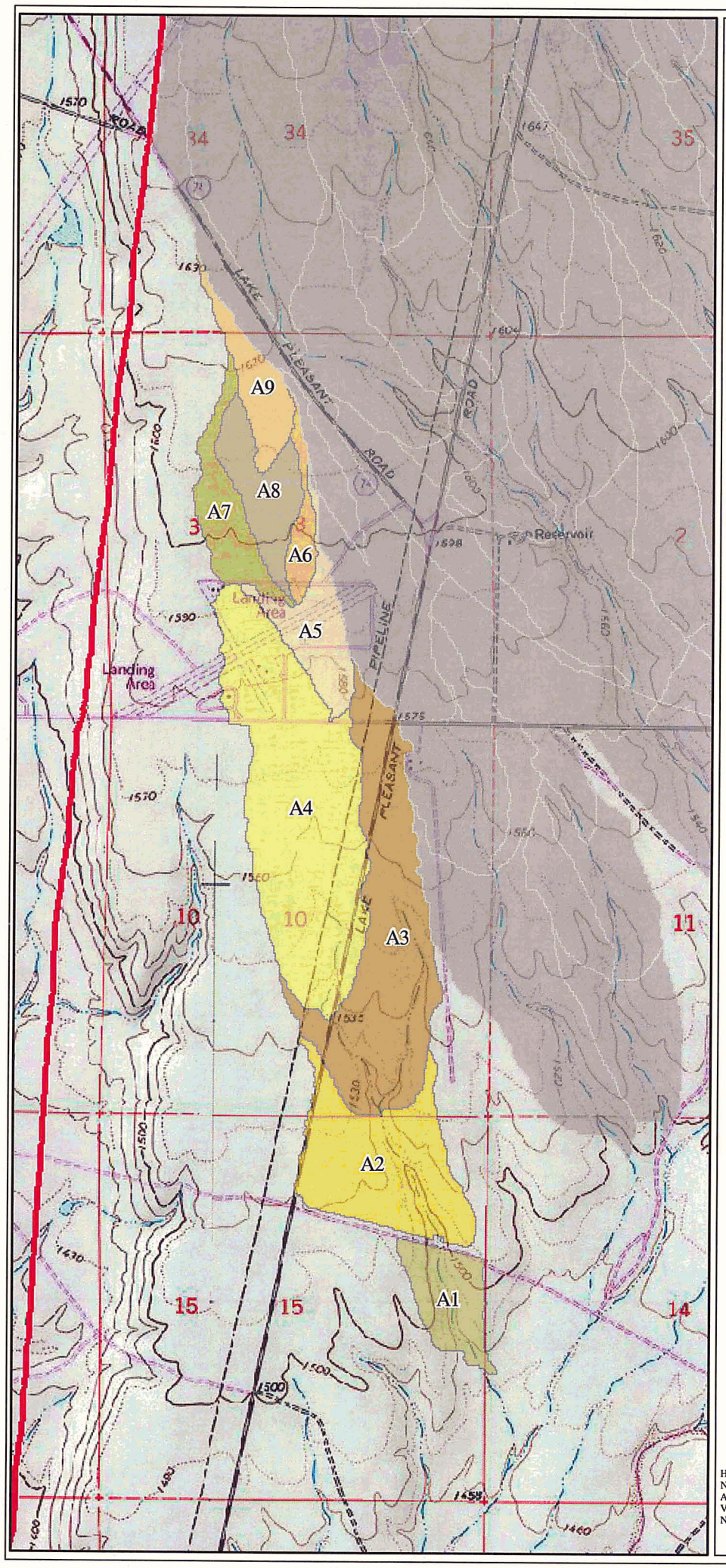
Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD 29

Data Sources:
USGS 7.5':
Biscuit Flat
Baldy Mtn.
New River
Governors Peak
Calderwood Butte
Hedgpeth Hills
MCCFCD

Date: 06.09.04
MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
PM: M.R.
Checked By: M.M.
Cartography: D.G.

P:\New_River_FDS\GIS\mxds\basins\nr_basins.mxd

New River West FDS
Appendix D.6.A
Basin A



LEGEND

- Project Boundary
- All Other Basins

Basin A Subbasin IDs

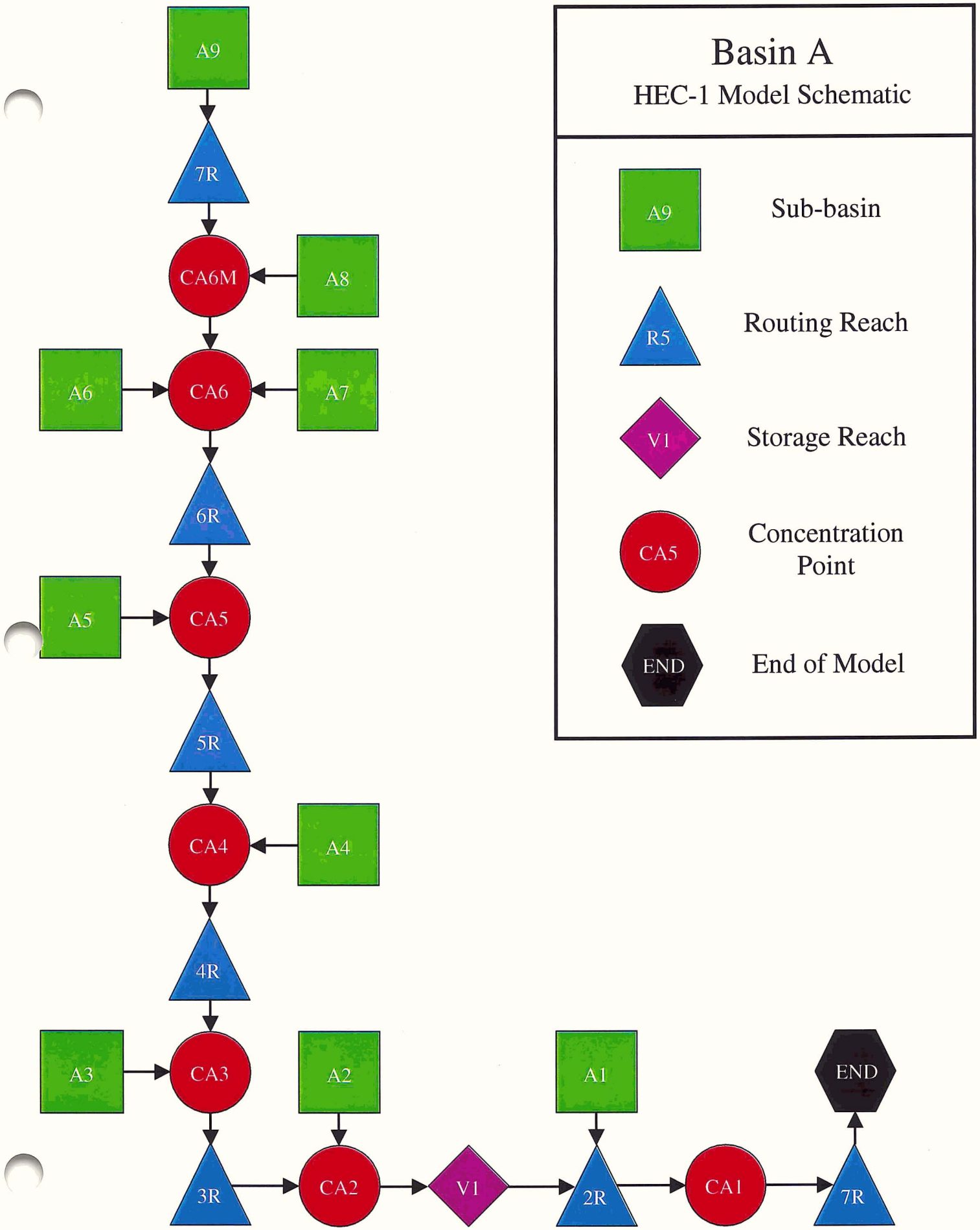
- A1
- A2
- A3
- A4
- A5
- A6
- A7
- A8
- A9

N

0 500 1,000 2,000
Feet
Scale: 1" = 2,000'

Horizontal Datum:	Data Sources:	Date: 06.09.04
NAD83 State Plane	USGS 7.5':	MCFCD Proj. No: FCD 2003-C057
AZ Central	Biscuit Flat	Proj. No: 23443706
Vertical Datum:	Baldy Mtn.	PM: M.R.
NGVD 29	MCCFCD	Checked By: M.M.
		Cartography: D.G.

P:\New_River_FDS\GIS\mxds\basins\nr_basinA.mxd


Basin A
HEC-1 Model Schematic
Sub-basin
Routing Reach
Storage Reach
Concentration Point
End of Model
A9
7R
CA6M
A8
A6
CA6
A7
6R
A5
CA5
5R
CA4
A4
4R
A3
CA3
A2
A1
END
3R
CA2
V1
2R
CA1
7R

Basin A

100 – Year
6 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUN   1998               *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   26MAY04  TIME  15:54:49   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
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  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin A - 100-Year 6-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD    3.32    0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 11           PC   0.962   0.972   0.983   0.991     1.0
 12           IN      15 28APR04       0
 13           JD     3.3     0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 16           PC   0.962   0.972   0.983   0.991     1.0
 17           IN      15 28APR04       0
 18           JD   3.277     1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 20           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 21           PC  0.9572  0.9684  0.9798  0.9898     1.0
 22           IN      15 28APR04       0
 23           JD   3.187     5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 25           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 26           PC  0.9487   0.962  0.9743  0.9877     1.0

 27           KK      A9
 28           KO       0       0     0.0       1      22
 29           BA    0.04
 30           LG    0.35    0.15    12.4   0.012     0.0
              * S_Graph
 31           UI     0.0    5.97   22.64   42.16   54.92   54.98   41.86   28.36   19.33   12.95
 32           UI    9.03    5.92    4.08    2.33    1.45    1.45    1.45     0.0

 33           KK      7R   CNAME     CA7
 34           KO       0       0     0.0       0      22
 35           RS       4    FLOW    -1.0     0.0
 36           RC    0.07    0.05    0.07 2076.12   0.008     0.0
              * 7R
 37           RX     0.0   74.73  170.59   214.6  281.54  332.14  394.38   482.4
 38           RY  1605.1  1605.0 1604.01 1603.69 1603.46 1603.99  1604.0 1604.92

 39           KK      A8
 40           KO       0       0     0.0       1      22
 41           BA  0.0529
 42           LG   0.347   0.217  10.159   0.035   0.818
              * S_Graph
 43           UI     0.0    8.51   34.02    61.9   77.71   73.62   51.92   34.81   22.89   15.31
 44           UI   10.17    6.55    4.65    2.02    2.02    2.02     0.0
```

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

  45          KK    CA6M   CNAME      6R
  46          KO       0       0     0.0       0      22
  47          HC       2   0.093

  48          KK      A6
  49          KO       0       0     0.0       1      22
  50          BA  0.0206
  51          LG    0.33    0.14    12.4   0.012   5.392
              * S_Graph
  52          UI     0.0    4.57   17.52   30.43   34.64   27.08    17.1   10.71    6.77    4.31
  53          UI     2.6    1.43    0.89    0.89     0.0

  54          KK      A7
  55          KO       0       0     0.0       1      22
  56          BA   0.049
  57          LG   0.338   0.294   7.931   0.085   3.391
              * S_Graph
  58          UI     0.0     6.5   20.24   40.23   56.12   62.18   55.72   40.73   28.99   20.47
  59          UI    14.3   10.65    7.07    4.84    4.06    1.58    1.58    1.58    1.58     0.0

  60          KK     CA6   CNAME      6R
  61          KO       0       0     0.0       0      22
  62          HC       3   0.163

  63          KK      6R   CNAME     CA6
  64          KO       0       0     0.0       0      22
  65          RS       4    FLOW    -1.0     0.0
  66          RC    0.07    0.05    0.07  1924.4  0.0086     0.0
              * 6R
  67          RX     0.0  101.79  144.27  171.14  218.95  282.45  358.61  432.49
  68          RY  1589.0 1588.14 1587.91 1587.21 1587.74 1587.25 1588.46  1589.8

  69          KK      A5
  70          KO       0       0     0.0       1      22
  71          BA   0.052
  72          LG   0.239   0.197   9.492   0.058  30.508
              * S_Graph
  73          UI     0.0    8.24   33.03    60.2   75.86   72.41   51.31   34.47   22.81   15.23
  74          UI   10.13    6.57    4.78    1.98    1.98    1.98     0.0

  75          KK     CA5   CNAME      5R
  76          KO       0       0     0.0       0      22
  77          HC       2   0.215

  78          KK      5R   CNAME     CA5
  79          KO       0       0     0.0       0      22
  80          RS       9    FLOW    -1.0     0.0
  81          RC    0.07    0.05    0.07 4722.88  0.0082     0.0
              * 5R
  82          RX     0.0  173.05  255.73  326.92  377.17  472.25  657.13  876.84
  83          RY  1561.0 1560.17 1559.19 1557.17 1557.82 1557.96 1559.83 1561.03
```



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

  84          KK      A4
  85          KO       0       0     0.0       1      22
  86          BA  0.2627
  87          LG   0.312   0.348     6.4   0.161  10.508
              * S_Graph
  88          UI     0.0   23.55   35.57   88.69  137.64  181.15  211.13  225.71  217.98   190.7
  89          UI  151.97  119.85   95.36   75.58   59.15   47.07   38.12   29.07   24.95   16.12
  90          UI   16.12   11.16    5.73    5.73    5.73    5.73    5.73    5.73     0.0

  91          KK     CA4   CNAME      4R
  92          KO       0       0     0.0       0      22
  93          HC       2   0.477

  94          KK      4R   CNAME     CA4
  95          KO       0       0     0.0       0      22
  96          RS       4    FLOW    -1.0     0.0
  97          RC    0.07    0.05    0.07 1650.74  0.0115     0.0
              * 4R
  98          RX     0.0   160.6  217.17  251.83  297.08  370.84   495.8  600.95
  99          RY  1536.1 1531.35 1530.23 1528.61 1528.38 1529.72 1535.01 1537.99

 100          KK      A3
 101          KO       0       0     0.0       1      22
 102          BA     0.2
 103          LG    0.34   0.277    8.54   0.067   3.327
              * S_Graph
 104          UI     0.0   18.76   31.02   74.74  116.62   150.1  172.35  179.76  167.83  139.66
 105          UI   108.2   85.81   67.02   53.06   39.88   32.51   25.61   19.88   14.27   12.84
 106          UI    9.66    4.57    4.57    4.57    4.57    4.57    4.57     0.0

 107          KK     CA3   CNAME      4R
 108          KO       0       0     0.0       0      22
```

```
 109          HC       2   0.677

 110          KK      3R   CNAME     CA3
 111          KO       0       0     0.0       0      22
 112          RS       4    FLOW    -1.0     0.0
 113          RC    0.07    0.05    0.07 2008.61  0.0102     0.0
              * 3R
 114          RX     0.0  173.09  233.47  284.54  338.75  411.91  515.38  596.82
 115          RY  1521.3 1513.05 1508.96  1506.4 1506.06 1509.48 1515.08  1519.4

 116          KK      A2
 117          KO       0       0     0.0       1      22
 118          BA   0.135
 119          LG    0.35   0.343   7.108   0.112     0.0
              * S_Graph
 120          UI     0.0   29.95  114.73  199.25  226.77  177.17  111.82   70.07   44.27   28.17
 121          UI   16.97    9.31    5.85    5.85     0.0
1                                          HEC-1 INPUT                                                PAGE  4

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


 122          KK     CA2   CNAME      2R
 123          KO       0       0     0.0       0      22
 124          HC       2   0.812

 125          KK      V1
 126          KM    30"RCP Under Granite Reef Aqueduct
              * RESERVOIR STORAGE
 127          KO       0       0     0.0       0      22
 128          RS       1    STOR     0.0     0.0
              * Area Curve A
 129          SA    0.29    1.11    2.02    3.15    4.62    6.29    8.26   10.45   13.24
              * Elevation Curve A
 130          SE  1498.0  1500.0  1502.0  1504.0  1506.0  1508.0  1510.0  1512.0  1514.0
              * Discharge Curve A
 131          SQ     3.9    27.0    45.1    56.9    66.7    75.3    82.7    87.6    92.2

 132          KK      2R   CNAME     CA2
 133          KO       0       0     0.0       0      22
 134          RS       5    FLOW    -1.0     0.0
 135          RC    0.07    0.05    0.07  2345.2  0.0099     0.0
              * 2R
 136          RX     0.0   83.24  144.71  180.22  233.98  290.83  350.32  409.54
 137          RY  1497.7  1491.7 1487.46 1486.26 1486.82 1490.06  1493.8 1497.21

 138          KK      A1
 139          KO       0       0     0.0       1      22
 140          BA  0.0501
 141          LG   0.346   0.365   6.616   0.139     0.0
              * S_Graph
 142          UI     0.0   18.01   68.74  103.21   86.38   49.87   27.65   15.75    8.81    4.23
 143          UI     2.7     2.7

 144          KK     CA1   CNAME      1R
 145          KO       0       0     0.0       0      22
 146          HC       2   0.862

 147          KK      1R   CNAME     CA1
 148          KO       0       0     0.0       0      22
 149          RN      1R
 150          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   27         A9
               V
               V
   33         7R
               .
               .
   39          .          A8
               .           .
               .           .
   45       CA6M............
               .
               .
   48          .          A6
               .           .
               .           .
   54          .           .          A7
               .           .           .
               .           .           .
   60       CA6........................
               V
               V
   63         6R
               .
               .
```

```
 69          .          A5
             .           .
             .           .
 75        CA5............
             V
             V
 78         5R
             .
             .
 84          .          A4
             .           .
             .           .
 91        CA4............
             V
             V
 94         4R
             .
             .
100          .          A3
             .           .
             .           .
107        CA3............
             V
             V
110         3R
             .
             .
116          .          A2
             .           .
             .           .
122        CA2............
             V
             V
125         V1
             V
             V
132         2R
             .
             .
138          .          A1
             .           .
             .           .
144        CA1............
             V
             V
147         1R
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   26MAY04  TIME  15:54:49  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
                    HEC-1 Analysis using WMS
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin A - 100-Year 6-Hour Storm Event
                    April 2004

  6 IO        OUTPUT CONTROL VARIABLES
                  IPRNT          4  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

  7 IN        TIME DATA FOR INPUT TIME SERIES
                  JXMIN         15  TIME INTERVAL IN MINUTES
                 JXDATE     28APR 4  STARTING DATE
                 JXTIME          0  STARTING TIME

 12 IN        TIME DATA FOR INPUT TIME SERIES
                  JXMIN         15  TIME INTERVAL IN MINUTES
                 JXDATE     28APR 4  STARTING DATE
                 JXTIME          0  STARTING TIME

 17 IN        TIME DATA FOR INPUT TIME SERIES
                  JXMIN         15  TIME INTERVAL IN MINUTES
                 JXDATE     28APR 4  STARTING DATE
                 JXTIME          0  STARTING TIME

 22 IN        TIME DATA FOR INPUT TIME SERIES
                  JXMIN         15  TIME INTERVAL IN MINUTES
                 JXDATE     28APR 4  STARTING DATE
                 JXTIME          0  STARTING TIME

    IT        HYDROGRAPH TIME DATA
```

```
                NMIN          5  MINUTES IN COMPUTATION INTERVAL
               IDATE     28APR 4  STARTING DATE
               ITIME       0000  STARTING TIME
                  NQ        200  NUMBER OF HYDROGRAPH ORDINATES
              NDDATE     28APR 4  ENDING DATE
              NDTIME       1635  ENDING TIME
              ICENT          19  CENTURY MARK

         COMPUTATION INTERVAL     .08 HOURS
              TOTAL TIME BASE   16.58 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

  8 JD       INDEX STORM NO. 1
               STRM        3.32  PRECIPITATION DEPTH
               TRDA         .01  TRANSPOSITION DRAINAGE AREA

  9 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

 13 JD       INDEX STORM NO. 2
               STRM        3.30  PRECIPITATION DEPTH
               TRDA         .50  TRANSPOSITION DRAINAGE AREA

 14 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

 18 JD       INDEX STORM NO. 3
               STRM        3.28  PRECIPITATION DEPTH
               TRDA        1.00  TRANSPOSITION DRAINAGE AREA

 19 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

 23 JD       INDEX STORM NO. 4
               STRM        3.19  PRECIPITATION DEPTH
               TRDA        5.00  TRANSPOSITION DRAINAGE AREA

 24 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 27 KK    *     A9     *
          *            *
          **************

 28 KO       OUTPUT CONTROL VARIABLES
               IPRNT           4  PRINT CONTROL
               IPLOT           0  PLOT CONTROL
               QSCAL          0.  HYDROGRAPH PLOT SCALE
               IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
```

```
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 29 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .04  SUBBASIN AREA

 30 LG        GREEN AND AMPT LOSS RATE
                   STRTL        .35  STARTING LOSS
                     DTH        .15  MOISTURE DEFICIT
                    PSIF      12.40  WETTING FRONT SUCTION
                   XKSAT        .01  HYDRAULIC CONDUCTIVITY
                   RTIMP        .00  PERCENT IMPERVIOUS AREA

 29 UI        INPUT UNITGRAPH,  17 ORDINATES,  VOLUME = 1.00
                     .0       6.0      22.6      42.2      54.9      55.0      41.9      28.4      19.3      12.9
                    9.0       5.9       4.1       2.3       1.5       1.5       1.5
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 33 KK    *        7R  *        CNAME     CA7
          *            *
          **************

 34 KO        OUTPUT CONTROL VARIABLES
                   IPRNT          4  PRINT CONTROL
                   IPLOT          0  PLOT CONTROL
                   QSCAL         0.  HYDROGRAPH PLOT SCALE
                   IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                    IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT       .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 35 RS        STORAGE ROUTING
                  NSTPS          4  NUMBER OF SUBREACHES
                   ITYP       FLOW  TYPE OF INITIAL CONDITION
                 RSVRIC      -1.00  INITIAL CONDITION
                      X        .00 WORKING R AND D COEFFICIENT

 36 RC        NORMAL DEPTH CHANNEL
                    ANL       .070  LEFT OVERBANK N-VALUE
                   ANCH       .050  MAIN CHANNEL N-VALUE
                    ANR       .070  RIGHT OVERBANK N-VALUE
                   RLNTH      2076.  REACH LENGTH
                    SEL      .0080  ENERGY SLOPE
                   ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 38 RY       ELEVATION   1605.10   1605.00   1604.01   1603.69   1603.46   1603.99   1604.00   1604.92
 37 RX       DISTANCE        .00     74.73    170.59    214.60    281.54    332.14    394.38    482.40
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .07       .27       .61      1.05      1.57      2.17      3.05      4.05      5.12
          OUTFLOW        .00       .47      3.00      9.03     19.40     34.02     53.27     82.50    121.11    167.09
        ELEVATION    1603.46   1603.55   1603.63   1603.72   1603.81   1603.89   1603.98   1604.06   1604.15   1604.24

          STORAGE       6.26      7.46      8.74     10.08     11.49     12.97     14.52     16.14     17.81     19.66
          OUTFLOW     220.29    280.66    348.24    423.08    505.27    594.90    692.07    797.33    911.96   1025.78
        ELEVATION    1604.32   1604.41   1604.50   1604.58   1604.67   1604.75   1604.84   1604.93   1605.01   1605.10


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 39 KK    *        A8  *
          *            *
          **************

 40 KO        OUTPUT CONTROL VARIABLES
                   IPRNT          4  PRINT CONTROL
                   IPLOT          0  PLOT CONTROL
```

```
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 41 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

 42 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .22  MOISTURE DEFICIT
                      PSIF       10.16  WETTING FRONT SUCTION
                     XKSAT         .04  HYDRAULIC CONDUCTIVITY
                     RTIMP         .82  PERCENT IMPERVIOUS AREA

 41 UI          INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                       .0       8.5      34.0      61.9      77.7      73.6      51.9      34.8      22.9      15.3
                     10.2       6.6       4.7       2.0       2.0       2.0
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 45 KK      *      CA6M  *        CNAME      6R
            *            *
            **************

 46 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

 47 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 48 KK      *         A6 *
            *            *
            **************

 49 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 50 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .02  SUBBASIN AREA

 51 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .33  STARTING LOSS
                       DTH         .14  MOISTURE DEFICIT
                      PSIF       12.40  WETTING FRONT SUCTION
                     XKSAT         .01  HYDRAULIC CONDUCTIVITY
                     RTIMP        5.39  PERCENT IMPERVIOUS AREA

 50 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                       .0       4.6      17.5      30.4      34.6      27.1      17.1      10.7       6.8       4.3
                      2.6       1.4        .9        .9
                                                                  ***
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 54 KK    *        A7  *
          *            *
          **************

 55 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 56 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

 57 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .34  STARTING LOSS
                        DTH         .29  MOISTURE DEFICIT
                       PSIF        7.93  WETTING FRONT SUCTION
                      XKSAT         .09  HYDRAULIC CONDUCTIVITY
                      RTIMP        3.39  PERCENT IMPERVIOUS AREA

 56 UI          INPUT UNITGRAPH,  19 ORDINATES,  VOLUME = 1.00
                        .0       6.5      20.2      40.2      56.1      62.2      55.7      40.7      29.0      20.5
                      14.3      10.6       7.1       4.8       4.1       1.6       1.6       1.6       1.6
                                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 60 KK    *       CA6  *        CNAME      6R
          *            *
          **************

 61 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 62 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 63 KK    *         6R  *        CNAME     CA6
          *            *
          **************

 64 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 65 RS          STORAGE ROUTING
                      NSTPS           4  NUMBER OF SUBREACHES
```

```
                    ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                       X         .00 WORKING R AND D COEFFICIENT

 66 RC          NORMAL DEPTH CHANNEL
                     ANL        .070  LEFT OVERBANK N-VALUE
                    ANCH        .050  MAIN CHANNEL N-VALUE
                     ANR        .070  RIGHT OVERBANK N-VALUE
                   RLNTH       1924.  REACH LENGTH
                     SEL       .0086  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 68 RY        ELEVATION   1589.00   1588.14   1587.91   1587.21   1587.74   1587.25   1588.46   1589.80
 67 RX        DISTANCE        .00    101.79    144.27    171.14    218.95    282.45    358.61    432.49

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .09       .44      1.05      1.93      2.96      4.12      5.48      7.00      8.68
          OUTFLOW        .00       .84      6.59     20.94     47.45     92.11    151.87    226.70    317.34    423.86
        ELEVATION    1587.21   1587.35   1587.48   1587.62   1587.76   1587.89   1588.03   1588.16   1588.30   1588.44

          STORAGE      10.50     12.47     14.58     16.83     19.18     21.58     24.03     26.52     29.06     31.64
          OUTFLOW     547.19    687.33    844.67   1019.70   1220.52   1440.38   1677.80   1932.49   2204.25   2492.99
        ELEVATION    1588.57   1588.71   1588.85   1588.98   1589.12   1589.26   1589.39   1589.53   1589.66   1589.80

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      687. TO     2493.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 69 KK    *        A5  *
          *            *
          **************

 70 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 71 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .05  SUBBASIN AREA

 72 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .24  STARTING LOSS
                       DTH         .20  MOISTURE DEFICIT
                      PSIF        9.49  WETTING FRONT SUCTION
                     XKSAT         .06  HYDRAULIC CONDUCTIVITY
                     RTIMP       30.51  PERCENT IMPERVIOUS AREA

 71 UI          INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                       .0       8.2      33.0      60.2      75.9      72.4      51.3      34.5      22.8      15.2
                     10.1       6.6       4.8       2.0       2.0       2.0

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 75 KK    *       CA5  *        CNAME      5R
          *            *
          **************

 76 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
```

```
                    TIMINT        .083  TIME INTERVAL IN HOURS

 77 HC          HYDROGRAPH COMBINATION
                     ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 78 KK      *        5R  *        CNAME     CA5
            *            *
            **************

 79 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          4  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 80 RS          STORAGE ROUTING
                     NSTPS          9  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

 81 RC          NORMAL DEPTH CHANNEL
                       ANL       .070  LEFT OVERBANK N-VALUE
                      ANCH       .050  MAIN CHANNEL N-VALUE
                       ANR       .070  RIGHT OVERBANK N-VALUE
                     RLNTH      4723.  REACH LENGTH
                       SEL      .0082  ENERGY SLOPE
                     ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 83 RY        ELEVATION   1561.00   1560.17   1559.19   1557.17   1557.82   1557.96   1559.83   1561.03
 82 RX        DISTANCE        .00    173.05    255.73    326.92    377.17    472.25    657.13    876.84
                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .25      1.01      2.27      4.87      9.06     13.84     19.22     25.20     31.78
          OUTFLOW        .00      1.36      8.66     25.53     49.18    128.95    241.16    385.64    562.89    773.75
        ELEVATION    1557.17   1557.37   1557.58   1557.78   1557.98   1558.19   1558.39   1558.59   1558.80   1559.00

          STORAGE      38.96     46.86     55.58     65.12     75.64     87.36    100.68    115.74    132.56    151.11
          OUTFLOW    1020.36   1322.96   1666.27   2052.56   2468.70   2934.41   3453.67   4039.11   4694.98   5430.32
        ELEVATION    1559.20   1559.40   1559.61   1559.81   1560.01   1560.22   1560.42   1560.62   1560.83   1561.03

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      774. TO     5430.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 84 KK      *        A4  *
            *            *
            **************

 85 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          4  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 86 BA          SUBBASIN CHARACTERISTICS
```

```
                    TAREA          .26  SUBBASIN AREA

 87 LG          GREEN AND AMPT LOSS RATE
                    STRTL          .31  STARTING LOSS
                      DTH          .35  MOISTURE DEFICIT
                     PSIF         6.40  WETTING FRONT SUCTION
                    XKSAT          .16  HYDRAULIC CONDUCTIVITY
                    RTIMP        10.51  PERCENT IMPERVIOUS AREA

 86 UI          INPUT UNITGRAPH,  28 ORDINATES,  VOLUME = 1.00
                      .0      23.5      35.6      88.7     137.6     181.1     211.1     225.7     218.0     190.7
                   152.0     119.8      95.4      75.6      59.2      47.1      38.1      29.1      25.0      16.1
                    16.1      11.2       5.7       5.7       5.7       5.7       5.7       5.7
                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 91 KK      *      CA4   *        CNAME      4R
            *            *
            **************

 92 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

 93 HC          HYDROGRAPH COMBINATION
                    ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 94 KK      *       4R   *        CNAME     CA4
            *            *
            **************

 95 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

 96 RS          STORAGE ROUTING
                    NSTPS           4  NUMBER OF SUBREACHES
                     ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                        X         .00 WORKING R AND D COEFFICIENT

 97 RC          NORMAL DEPTH CHANNEL
                      ANL        .070  LEFT OVERBANK N-VALUE
                     ANCH        .050  MAIN CHANNEL N-VALUE
                      ANR        .070  RIGHT OVERBANK N-VALUE
                    RLNTH       1651.  REACH LENGTH
                      SEL       .0115  ENERGY SLOPE
                    ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 99 RY        ELEVATION   1536.10   1531.35   1530.23   1528.61   1528.38   1529.72   1535.01   1537.99
 98 RX        DISTANCE        .00    160.60    217.17    251.83    297.08    370.84    495.80    600.95
                                                                    ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .97      2.85      5.46      8.58     12.36     16.86     21.98     27.65     33.88
          OUTFLOW        .00     38.43    178.52    453.16    900.69   1519.74   2304.69   3267.81   4409.72   5736.52
        ELEVATION    1528.38   1528.89   1529.39   1529.90   1530.40   1530.91   1531.41   1531.92   1532.43   1532.93
```

```
        STORAGE      40.67     48.01     55.91     64.37     73.43     83.15     93.46    104.12    115.13    126.47
        OUTFLOW    7254.83   8971.45  10893.28  13027.23  15344.29  17894.19  20818.67  24037.87  27505.19  31221.05
      ELEVATION    1533.44   1533.94   1534.45   1534.95   1535.46   1535.97   1536.47   1536.98   1537.48   1537.99

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       38. TO    31221.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 100 KK     *       A3   *
            *            *
            **************

 101 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 102 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .20  SUBBASIN AREA

 103 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .34  STARTING LOSS
                        DTH         .28  MOISTURE DEFICIT
                       PSIF        8.54  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP        3.33  PERCENT IMPERVIOUS AREA

 102 UI          INPUT UNITGRAPH,  27 ORDINATES,  VOLUME = 1.00
                        .0      18.8      31.0      74.7     116.6     150.1     172.4     179.8     167.8     139.7
                     108.2      85.8      67.0      53.1      39.9      32.5      25.6      19.9      14.3      12.8
                       9.7       4.6       4.6       4.6       4.6       4.6       4.6
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 107 KK     *      CA3   *        CNAME      4R
            *            *
            **************

 108 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 109 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 110 KK     *       3R   *        CNAME     CA3
            *            *
            **************

 111 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
```

```
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 112 RS        STORAGE ROUTING
                    NSTPS          4  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

 113 RC        NORMAL DEPTH CHANNEL
                      ANL       .070  LEFT OVERBANK N-VALUE
                     ANCH       .050  MAIN CHANNEL N-VALUE
                      ANR       .070  RIGHT OVERBANK N-VALUE
                    RLNTH      2009.  REACH LENGTH
                      SEL      .0102  ENERGY SLOPE
                    ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                        CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 115 RY       ELEVATION   1521.30   1513.05   1508.96   1506.40   1506.06   1509.48   1515.08   1519.40
 114 RX       DISTANCE        .00    173.09    233.47    284.54    338.75    411.91    515.38    596.82

                                                                  ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      2.00      5.59     10.41     16.45     23.56     31.66     40.75     50.83     61.90
          OUTFLOW        .00     86.04    380.49    904.39   1726.47   2991.73   4617.77   6582.86   8898.10  11568.92
        ELEVATION    1506.06   1506.86   1507.66   1508.47   1509.27   1510.07   1510.87   1511.67   1512.48   1513.28

          STORAGE      74.09     87.45    101.99    117.71    134.61    152.69    171.96    192.36    213.50    235.27
          OUTFLOW   14606.24  18045.60  21902.09  26194.26  30939.53  36154.46  41855.41  48172.62  55195.79  62729.52
        ELEVATION    1514.08   1514.88   1515.69   1516.49   1517.29   1518.09   1518.89   1519.70   1520.50   1521.30


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       86. TO    62730.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 116 KK   *        A2  *
          *            *
          **************

 117 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 118 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .14  SUBBASIN AREA

 119 LG        GREEN AND AMPT LOSS RATE
                    STRTL        .35  STARTING LOSS
                      DTH        .34  MOISTURE DEFICIT
                     PSIF       7.11  WETTING FRONT SUCTION
                    XKSAT        .11  HYDRAULIC CONDUCTIVITY
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

 118 UI        INPUT UNITGRAPH,  14 ORDINATES,  VOLUME =  .99
                      .0      30.0     114.7     199.3     226.8     177.2     111.8      70.1      44.3      28.2
                    17.0       9.3       5.8       5.8

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 122 KK   *       CA2  *        CNAME      2R
```

```
          *            *
          **************

123 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

124 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
125 KK    *        V1  *
          *            *
          **************
                    30"RCP Under Granite Reef Aqueduct

127 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

128 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC         .00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

129 SA               AREA          .3       1.1       2.0       3.2       4.6       6.3       8.3      10.4      13.2

130 SE          ELEVATION     1498.00   1500.00   1502.00   1504.00   1506.00   1508.00   1510.00   1512.00   1514.00

131 SQ          DISCHARGE          4.       27.       45.       57.       67.       75.       83.       88.       92.
                                                                  ***

                                                COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00      1.31      4.40      9.52     17.25     28.12     42.62     61.29     84.92
        ELEVATION    1498.00   1500.00   1502.00   1504.00   1506.00   1508.00   1510.00   1512.00   1514.00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
132 KK    *        2R  *        CNAME     CA2
          *            *
          **************

133 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

134 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT
```

```
135 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       2345.  REACH LENGTH
                       SEL       .0099  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
137 RY        ELEVATION   1497.70   1491.70   1487.46   1486.26   1486.82   1490.06   1493.80   1497.21
136 RX        DISTANCE        .00     83.24    144.71    180.22    233.98    290.83    350.32    409.54

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.22      4.03      7.60     11.80     16.63     22.08     28.14     34.81     42.06
          OUTFLOW        .00     31.07    181.91    477.97    901.44   1456.47   2149.36   3064.81   4175.05   5451.72
        ELEVATION    1486.26   1486.86   1487.46   1488.07   1488.67   1489.27   1489.87   1490.47   1491.08   1491.68

          STORAGE      49.91     58.33     67.34     76.93     87.13     97.93    109.35    121.37    134.01    147.14
          OUTFLOW    6901.15   8525.95  10330.63  12318.27  14494.42  16866.28  19439.02  22217.81  25207.79  28509.71
        ELEVATION    1492.28   1492.88   1493.48   1494.09   1494.69   1495.29   1495.89   1496.49   1497.10   1497.70

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      182. TO    28510.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
138 KK      *        A1  *
            *            *
            **************

139 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

140 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

141 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .37  MOISTURE DEFICIT
                       PSIF        6.62  WETTING FRONT SUCTION
                      XKSAT         .14  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

140 UI          INPUT UNITGRAPH,  12 ORDINATES,  VOLUME = 1.00
                        .0      18.0      68.7     103.2      86.4      49.9      27.6      15.8       8.8       4.2
                       2.7       2.7

                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
144 KK      *       CA1  *        CNAME      1R
            *            *
            **************

145 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

146 HC          HYDROGRAPH COMBINATION
```

```
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
147 KK    *        1R  *        CNAME     CA1
          *            *
          **************

148 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

149 RN          NO ROUTING
                                                          ***
1
                                                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 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	A9	94.	4.25	11.	4.	4.	.04		
+	ROUTED TO	7R	74.	4.67	11.	4.	4.	.04		
+	HYDROGRAPH AT	A8	124.	4.25	13.	5.	5.	.05		
+	2 COMBINED AT	CA6M	154.	4.33	24.	9.	9.	.09		
+	HYDROGRAPH AT	A6	54.	4.25	6.	2.	2.	.02		
+	HYDROGRAPH AT	A7	98.	4.33	11.	4.	4.	.05		
+	3 COMBINED AT	CA6	299.	4.33	40.	15.	15.	.16		
+	ROUTED TO	6R	276.	4.50	40.	15.	15.	.16		
+	HYDROGRAPH AT	A5	124.	4.25	14.	5.	5.	.05		
+	2 COMBINED AT	CA5	349.	4.50	54.	20.	20.	.22		
+	ROUTED TO	5R	306.	5.00	54.	20.	20.	.22		
+	HYDROGRAPH AT	A4	369.	4.50	54.	20.	20.	.26		
+	2 COMBINED AT	CA4	483.	4.83	107.	39.	39.	.48		
+	ROUTED TO	4R	478.	5.00	107.	39.	39.	.48		
+	HYDROGRAPH AT	A3	315.	4.50	45.	16.	16.	.20		
+	2 COMBINED AT	CA3	641.	4.58	149.	55.	55.	.68		
+	ROUTED TO	3R	635.	4.67	149.	55.	55.	.68		
+	HYDROGRAPH AT	A2	309.	4.25	27.	10.	10.	.14		

	2 COMBINED AT							
+		CA2	692.	4.58	173.	63.	63.	.81
	ROUTED TO							
+		V1	88.	6.33	86.	59.	59.	.81
	ROUTED TO							
+		2R	88.	6.58	86.	58.	58.	.81
	HYDROGRAPH AT							
+		A1	127.	4.17	10.	3.	3.	.05
	2 COMBINED AT							
+		CA1	118.	4.17	86.	61.	61.	.86
	ROUTED TO							
+		1R	118.	4.17	86.	61.	61.	.86

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

Basin A

100 – Year
24 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN   1998               *
 *            VERSION 4.1                *
 *                                       *
 *  RUN DATE   26MAY04  TIME  15:55:01   *
 *                                       *
 *****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
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  HEC-1 Analysis using WMS
    2           ID  New River West Tributaries FDS - FCD 2003 C057
    3           ID  Basin A - 100-Year 24-Hour Storm Event
    4           ID  April 2004
                *DIAGRAM
    5           IT       5 28APR04       0     200
    6           IO       4
    7           IN      15 28APR04       0
    8           JD   4.177    0.01
                * 24-hour distribution
    9           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
   10           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
   11           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
   12           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
   13           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
   14           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
   15           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
   16           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
   17           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
   18           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
   19           IN      15 28APR04       0
   20           JD   3.968    10.0
                * 24-hour distribution
   21           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
   22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
   23           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
   24           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
   25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
   26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
   27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
   28           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
   29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
   30           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

   31           KK      A9
   32           KO       0       0     0.0       1      22
   33           BA    0.04
   34           LG    0.35    0.15    12.4   0.012     0.0
                * S_Graph
   35           UI     0.0    5.97   22.64   42.16   54.92   54.98   41.86   28.36   19.33   12.95
   36           UI    9.03    5.92    4.08    2.33    1.45    1.45    1.45     0.0

   37           KK      7R   CNAME     CA7
   38           KO       0       0     0.0       0      22
   39           RS       4    FLOW    -1.0     0.0
   40           RC    0.07    0.05    0.07 2076.12   0.008     0.0
                * 7R
   41           RX     0.0   74.73  170.59   214.6  281.54  332.14  394.38   482.4
   42           RY  1605.1  1605.0 1604.01 1603.69 1603.46 1603.99  1604.0 1604.92
1                                          HEC-1 INPUT                                                    PAGE  2

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

   43           KK      A8
```

```
 44          KO       0       0     0.0       1      22
 45          BA  0.0529
 46          LG   0.347   0.217  10.159   0.035   0.818
             * S_Graph
 47          UI     0.0    8.51   34.02    61.9   77.71   73.62   51.92   34.81   22.89   15.31
 48          UI   10.17    6.55    4.65    2.02    2.02    2.02     0.0

 49          KK    CA6M   CNAME      6R
 50          KO       0       0     0.0       0      22
 51          HC       2   0.093

 52          KK      A6
 53          KO       0       0     0.0       1      22
 54          BA  0.0206
 55          LG    0.33    0.14    12.4   0.012   5.392
             * S_Graph
 56          UI     0.0    4.57   17.52   30.43   34.64   27.08    17.1   10.71    6.77    4.31
 57          UI     2.6    1.43    0.89    0.89     0.0

 58          KK      A7
 59          KO       0       0     0.0       1      22
 60          BA   0.049
 61          LG   0.338   0.294   7.931   0.085   3.391
             * S_Graph
 62          UI     0.0     6.5   20.24   40.23   56.12   62.18   55.72   40.73   28.99   20.47
 63          UI    14.3   10.65    7.07    4.84    4.06    1.58    1.58    1.58    1.58     0.0

 64          KK     CA6   CNAME      6R
 65          KO       0       0     0.0       0      22
 66          HC       3   0.163

 67          KK      6R   CNAME     CA6
 68          KO       0       0     0.0       0      22
 69          RS       4    FLOW    -1.0     0.0
 70          RC    0.07    0.05    0.07  1924.4  0.0086     0.0
             * 6R
 71          RX     0.0  101.79  144.27  171.14  218.95  282.45  358.61  432.49
 72          RY  1589.0 1588.14 1587.91 1587.21 1587.74 1587.25 1588.46  1589.8

 73          KK      A5
 74          KO       0       0     0.0       1      22
 75          BA   0.052
 76          LG   0.239   0.197   9.492   0.058  30.508
             * S_Graph
 77          UI     0.0    8.24   33.03    60.2   75.86   72.41   51.31   34.47   22.81   15.23
 78          UI   10.13    6.57    4.78    1.98    1.98    1.98     0.0

 79          KK     CA5   CNAME      5R
 80          KO       0       0     0.0       0      22
 81          HC       2   0.215
```



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

 82          KK      5R   CNAME     CA5
 83          KO       0       0     0.0       0      22
 84          RS       9    FLOW    -1.0     0.0
 85          RC    0.07    0.05    0.07 4722.88  0.0082     0.0
             * 5R
 86          RX     0.0  173.05  255.73  326.92  377.17  472.25  657.13  876.84
 87          RY  1561.0 1560.17 1559.19 1557.17 1557.82 1557.96 1559.83 1561.03

 88          KK      A4
 89          KO       0       0     0.0       1      22
 90          BA  0.2627
 91          LG   0.312   0.348     6.4   0.161  10.508
             * S_Graph
 92          UI     0.0   23.55   35.57   88.69  137.64  181.15  211.13  225.71  217.98   190.7
 93          UI  151.97  119.85   95.36   75.58   59.15   47.07   38.12   29.07   24.95   16.12
 94          UI   16.12   11.16    5.73    5.73    5.73    5.73    5.73    5.73     0.0

 95          KK     CA4   CNAME      4R
 96          KO       0       0     0.0       0      22
 97          HC       2   0.477

 98          KK      4R   CNAME     CA4
 99          KO       0       0     0.0       0      22
100          RS       4    FLOW    -1.0     0.0
101          RC    0.07    0.05    0.07 1650.74  0.0115     0.0
             * 4R
102          RX     0.0   160.6  217.17  251.83  297.08  370.84   495.8  600.95
103          RY  1536.1 1531.35 1530.23 1528.61 1528.38 1529.72 1535.01 1537.99

104          KK      A3
105          KO       0       0     0.0       1      22
106          BA     0.2
107          LG    0.34   0.277    8.54   0.067   3.327
             * S_Graph
108          UI     0.0   18.76   31.02   74.74  116.62   150.1  172.35  179.76  167.83  139.66
109          UI   108.2   85.81   67.02   53.06   39.88   32.51   25.61   19.88   14.27   12.84
110          UI    9.66    4.57    4.57    4.57    4.57    4.57    4.57     0.0
```

```
 111          KK      CA3   CNAME      3R
 112          KO        0       0     0.0       0      22
 113          HC        2   0.677

 114          KK       3R   CNAME     CA3
 115          KO        0       0     0.0       0      22
 116          RS        4    FLOW    -1.0     0.0
 117          RC     0.07    0.05    0.07 2008.61  0.0102     0.0
              * 3R
 118          RX      0.0  173.09  233.47  284.54  338.75  411.91  515.38  596.82
 119          RY   1521.3 1513.05 1508.96  1506.4 1506.06 1509.48 1515.08  1519.4
1                                          HEC-1 INPUT                                                    PAGE  4

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


 120          KK       A2
 121          KO        0       0     0.0       1      22
 122          BA    0.135
 123          LG     0.35   0.343   7.108   0.112     0.0
              * S_Graph
 124          UI      0.0   29.95  114.73  199.25  226.77  177.17  111.82   70.07   44.27   28.17
 125          UI    16.97    9.31    5.85    5.85     0.0

 126          KK      CA2   CNAME      2R
 127          KO        0       0     0.0       0      22
 128          HC        2   0.812

 129          KK       V1
 130          KM     30"RCP Under the Granite Reef Aqueduct
              * RESERVOIR STORAGE
 131          KO        0       0     0.0       0      22
 132          RS        1    STOR     0.0     0.0
              * Area Curve A
 133          SA     0.29    1.11    2.02    3.15    4.62    6.29    8.26   10.45   13.24
              * Elevation Curve A
 134          SE   1498.0  1500.0  1502.0  1504.0  1506.0  1508.0  1510.0  1512.0  1514.0
              * Discharge Curve A
 135          SQ      3.9    27.0    45.1    56.9    66.7    75.3    82.7    87.6    92.2

 136          KK       2R   CNAME     CA2
 137          KO        0       0     0.0       0      22
 138          RS        5    FLOW    -1.0     0.0
 139          RC     0.07    0.05    0.07  2345.2  0.0099     0.0
              * 2R
 140          RX      0.0   83.24  144.71  180.22  233.98  290.83  350.32  409.54
 141          RY   1497.7  1491.7 1487.46 1486.26 1486.82 1490.06  1493.8 1497.21

 142          KK       A1
 143          KO        0       0     0.0       1      22
 144          BA   0.0501
 145          LG    0.346   0.365   6.616   0.139     0.0
              * S_Graph
 146          UI      0.0   18.01   68.74  103.21   86.38   49.87   27.65   15.75    8.81    4.23
 147          UI      2.7     2.7

 148          KK      CA1   CNAME      1R
 149          KO        0       0     0.0       0      22
 150          HC        2   0.862

 151          KK       1R   CNAME     CA1
 152          KO        0       0     0.0       0      22
 153          RN       1R
 154          ZZ
1
              SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   31         A9
               V
               V
   37         7R
               .
               .
   43          .          A8
               .           .
               .           .
   49       CA6M............
               .
               .
   52          .          A6
               .           .
               .           .
   58          .           .          A7
               .           .           .
               .           .           .
   64       CA6........................
               V
               V
   67         6R
```

```
                .
                .
  73            .          A5
                .           .
                .           .
  79         CA5............
               V
               V
  82          5R
                .
                .
  88            .          A4
                .           .
                .           .
  95         CA4............
               V
               V
  98          4R
                .
                .
 104            .          A3
                .           .
                .           .
 111         CA3............
               V
               V
 114          3R
                .
                .
 120            .          A2
                .           .
                .           .
 126         CA2............
               V
               V
 129          V1
               V
               V
 136          2R
                .
                .
 142            .          A1
                .           .
                .           .
 148         CA1............
               V
               V
 151          1R
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   26MAY04  TIME  15:55:01  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
                    HEC-1 Analysis using WMS
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin A - 100-Year 24-Hour Storm Event
                    April 2004

  6 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

  7 IN        TIME DATA FOR INPUT TIME SERIES
                     JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

 19 IN        TIME DATA FOR INPUT TIME SERIES
                     JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

    IT        HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE     28APR 4  STARTING DATE
                    ITIME        0000  STARTING TIME
                       NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     28APR 4  ENDING DATE
                   NDTIME        1635  ENDING TIME
                    ICENT          19  CENTURY MARK
```

```
              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   16.58 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

  8 JD          INDEX STORM NO. 1
                      STRM        4.18  PRECIPITATION DEPTH
                      TRDA         .01  TRANSPOSITION DRAINAGE AREA

  9 PI            PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                      .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                      .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00

 20 JD          INDEX STORM NO. 2
                      STRM        3.97  PRECIPITATION DEPTH
                      TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 21 PI            PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                      .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                      .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                      .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 31 KK    *     A9     *
          *            *
          **************

 32 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 33 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .04  SUBBASIN AREA

 34 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
```

```
                    DTH        .15  MOISTURE DEFICIT
                   PSIF      12.40  WETTING FRONT SUCTION
                  XKSAT        .01  HYDRAULIC CONDUCTIVITY
                  RTIMP        .00  PERCENT IMPERVIOUS AREA

 33 UI        INPUT UNITGRAPH,  17 ORDINATES,  VOLUME = 1.00
                  .0       6.0      22.6      42.2      54.9      55.0      41.9      28.4      19.3      12.9
                 9.0       5.9       4.1       2.3       1.5       1.5       1.5
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 37 KK    *        7R  *        CNAME     CA7
          *            *
          **************

 38 KO        OUTPUT CONTROL VARIABLES
                 IPRNT          4  PRINT CONTROL
                 IPLOT          0  PLOT CONTROL
                 QSCAL         0.  HYDROGRAPH PLOT SCALE
                 IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                  IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                 ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                 ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                TIMINT       .083  TIME INTERVAL IN HOURS


           HYDROGRAPH ROUTING DATA

 39 RS        STORAGE ROUTING
                NSTPS          4  NUMBER OF SUBREACHES
                 ITYP       FLOW  TYPE OF INITIAL CONDITION
                RSVRIC      -1.00  INITIAL CONDITION
                     X        .00 WORKING R AND D COEFFICIENT

 40 RC        NORMAL DEPTH CHANNEL
                  ANL       .070  LEFT OVERBANK N-VALUE
                 ANCH       .050  MAIN CHANNEL N-VALUE
                  ANR       .070  RIGHT OVERBANK N-VALUE
                RLNTH      2076.  REACH LENGTH
                  SEL      .0080  ENERGY SLOPE
                ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 42 RY      ELEVATION   1605.10   1605.00   1604.01   1603.69   1603.46   1603.99   1604.00   1604.92
 41 RX      DISTANCE        .00     74.73    170.59    214.60    281.54    332.14    394.38    482.40
                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

        STORAGE        .00       .07       .27       .61      1.05      1.57      2.17      3.05      4.05      5.12
        OUTFLOW        .00       .47      3.00      9.03     19.40     34.02     53.27     82.50    121.11    167.09
      ELEVATION    1603.46   1603.55   1603.63   1603.72   1603.81   1603.89   1603.98   1604.06   1604.15   1604.24

        STORAGE       6.26      7.46      8.74     10.08     11.49     12.97     14.52     16.14     17.81     19.66
        OUTFLOW     220.29    280.66    348.24    423.08    505.27    594.90    692.07    797.33    911.96   1025.78
      ELEVATION    1604.32   1604.41   1604.50   1604.58   1604.67   1604.75   1604.84   1604.93   1605.01   1605.10


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 43 KK    *        A8  *
          *            *
          **************

 44 KO        OUTPUT CONTROL VARIABLES
                 IPRNT          4  PRINT CONTROL
                 IPLOT          0  PLOT CONTROL
                 QSCAL         0.  HYDROGRAPH PLOT SCALE
                 IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                  IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                 ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                 ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                TIMINT       .083  TIME INTERVAL IN HOURS


           SUBBASIN RUNOFF DATA

 45 BA        SUBBASIN CHARACTERISTICS
                 TAREA        .05  SUBBASIN AREA
```

```
 46 LG          GREEN AND AMPT LOSS RATE
                      STRTL          .35  STARTING LOSS
                        DTH          .22  MOISTURE DEFICIT
                       PSIF        10.16  WETTING FRONT SUCTION
                      XKSAT          .04  HYDRAULIC CONDUCTIVITY
                      RTIMP          .82  PERCENT IMPERVIOUS AREA

 45 UI          INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                       .0       8.5      34.0      61.9      77.7      73.6      51.9      34.8      22.9      15.3
                     10.2       6.6       4.7       2.0       2.0       2.0
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 49 KK      *      CA6M  *        CNAME      6R
            *            *
            **************

 50 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 51 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 52 KK      *         A6 *
            *            *
            **************

 53 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 54 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .02  SUBBASIN AREA

 55 LG          GREEN AND AMPT LOSS RATE
                      STRTL          .33  STARTING LOSS
                        DTH          .14  MOISTURE DEFICIT
                       PSIF        12.40  WETTING FRONT SUCTION
                      XKSAT          .01  HYDRAULIC CONDUCTIVITY
                      RTIMP         5.39  PERCENT IMPERVIOUS AREA

 54 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                       .0       4.6      17.5      30.4      34.6      27.1      17.1      10.7       6.8       4.3
                      2.6       1.4        .9        .9
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 58 KK      *         A7 *
            *            *
            **************

 59 KO          OUTPUT CONTROL VARIABLES
```

```
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 60 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .05  SUBBASIN AREA

 61 LG        GREEN AND AMPT LOSS RATE
                    STRTL        .34  STARTING LOSS
                      DTH        .29  MOISTURE DEFICIT
                     PSIF       7.93  WETTING FRONT SUCTION
                    XKSAT        .09  HYDRAULIC CONDUCTIVITY
                    RTIMP       3.39  PERCENT IMPERVIOUS AREA

 60 UI        INPUT UNITGRAPH,  19 ORDINATES,  VOLUME = 1.00
                     .0       6.5      20.2      40.2      56.1      62.2      55.7      40.7      29.0      20.5
                    14.3      10.6       7.1       4.8       4.1       1.6       1.6       1.6       1.6
                                                                    ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 64 KK    *      CA6   *        CNAME      6R
          *            *
          **************

 65 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

 66 HC        HYDROGRAPH COMBINATION
                    ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                    ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 67 KK    *       6R   *        CNAME      CA6
          *            *
          **************

 68 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


           HYDROGRAPH ROUTING DATA

 69 RS        STORAGE ROUTING
                   NSTPS          4  NUMBER OF SUBREACHES
                    ITYP       FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC      -1.00  INITIAL CONDITION
                       X        .00 WORKING R AND D COEFFICIENT

 70 RC        NORMAL DEPTH CHANNEL
                     ANL       .070  LEFT OVERBANK N-VALUE
                    ANCH       .050  MAIN CHANNEL N-VALUE
                     ANR       .070  RIGHT OVERBANK N-VALUE
                   RLNTH      1924.  REACH LENGTH
                     SEL      .0086  ENERGY SLOPE
                   ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
```

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                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 72 RY        ELEVATION   1589.00   1588.14   1587.91   1587.21   1587.74   1587.25   1588.46   1589.80
 71 RX        DISTANCE        .00    101.79    144.27    171.14    218.95    282.45    358.61    432.49

                                                  ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .09       .44      1.05      1.93      2.96      4.12      5.48      7.00      8.68
          OUTFLOW        .00       .84      6.59     20.94     47.45     92.11    151.87    226.70    317.34    423.86
        ELEVATION    1587.21   1587.35   1587.48   1587.62   1587.76   1587.89   1588.03   1588.16   1588.30   1588.44

          STORAGE      10.50     12.47     14.58     16.83     19.18     21.58     24.03     26.52     29.06     31.64
          OUTFLOW     547.19    687.33    844.67   1019.70   1220.52   1440.38   1677.80   1932.49   2204.25   2492.99
        ELEVATION    1588.57   1588.71   1588.85   1588.98   1589.12   1589.26   1589.39   1589.53   1589.66   1589.80

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      687. TO     2493.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 73 KK    *        A5  *
          *            *
          **************

 74 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 75 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

 76 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .24  STARTING LOSS
                        DTH         .20  MOISTURE DEFICIT
                       PSIF        9.49  WETTING FRONT SUCTION
                      XKSAT         .06  HYDRAULIC CONDUCTIVITY
                      RTIMP       30.51  PERCENT IMPERVIOUS AREA

 75 UI          INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                        .0       8.2      33.0      60.2      75.9      72.4      51.3      34.5      22.8      15.2
                      10.1       6.6       4.8       2.0       2.0       2.0

                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 79 KK    *       CA5  *        CNAME      5R
          *            *
          **************

 80 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 81 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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            **************
            *            *
 82 KK      *        5R  *        CNAME     CA5
            *            *
            **************

 83 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

 84 RS          STORAGE ROUTING
                      NSTPS           9  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 85 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       4723.  REACH LENGTH
                        SEL       .0082  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 87 RY        ELEVATION   1561.00   1560.17   1559.19   1557.17   1557.82   1557.96   1559.83   1561.03
 86 RX        DISTANCE        .00    173.05    255.73    326.92    377.17    472.25    657.13    876.84

                                                    ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .25      1.01      2.27      4.87      9.06     13.84     19.22     25.20     31.78
          OUTFLOW        .00      1.36      8.66     25.53     49.18    128.95    241.16    385.64    562.89    773.75
        ELEVATION    1557.17   1557.37   1557.58   1557.78   1557.98   1558.19   1558.39   1558.59   1558.80   1559.00

          STORAGE      38.96     46.86     55.58     65.12     75.64     87.36    100.68    115.74    132.56    151.11
          OUTFLOW    1020.36   1322.96   1666.27   2052.56   2468.70   2934.41   3453.67   4039.11   4694.98   5430.32
        ELEVATION    1559.20   1559.40   1559.61   1559.81   1560.01   1560.22   1560.42   1560.62   1560.83   1561.03

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      774. TO     5430.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 88 KK      *        A4  *
            *            *
            **************

 89 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 90 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .26  SUBBASIN AREA

 91 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .31  STARTING LOSS
                        DTH         .35  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .16  HYDRAULIC CONDUCTIVITY
                      RTIMP       10.51  PERCENT IMPERVIOUS AREA

 90 UI          INPUT UNITGRAPH,  28 ORDINATES,  VOLUME = 1.00
                         .0      23.5      35.6      88.7     137.6     181.1     211.1     225.7     218.0     190.7
                       152.0     119.8      95.4      75.6      59.2      47.1      38.1      29.1      25.0      16.1
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                16.1      11.2      5.7       5.7       5.7       5.7       5.7       5.7
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 95 KK    *      CA4   *        CNAME      4R
          *            *
          **************

 96 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 97 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 98 KK    *       4R   *        CNAME      CA4
          *            *
          **************

 99 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

100 RS          STORAGE ROUTING
                      NSTPS           4  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

101 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1651.  REACH LENGTH
                        SEL       .0115  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
103 RY        ELEVATION   1536.10   1531.35   1530.23   1528.61   1528.38   1529.72   1535.01   1537.99
102 RX        DISTANCE        .00    160.60    217.17    251.83    297.08    370.84    495.80    600.95
                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .97      2.85      5.46      8.58     12.36     16.86     21.98     27.65     33.88
          OUTFLOW        .00     38.43    178.52    453.16    900.69   1519.74   2304.69   3267.81   4409.72   5736.52
        ELEVATION    1528.38   1528.89   1529.39   1529.90   1530.40   1530.91   1531.41   1531.92   1532.43   1532.93

          STORAGE      40.67     48.01     55.91     64.37     73.43     83.15     93.46    104.12    115.13    126.47
          OUTFLOW    7254.83   8971.45  10893.28  13027.23  15344.29  17894.19  20818.67  24037.87  27505.19  31221.05
        ELEVATION    1533.44   1533.94   1534.45   1534.95   1535.46   1535.97   1536.47   1536.98   1537.48   1537.99

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       38. TO    31221.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
104 KK      *     A3     *
            *            *
            **************

105 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

106 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .20  SUBBASIN AREA

107 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .34  STARTING LOSS
                        DTH        .28  MOISTURE DEFICIT
                       PSIF       8.54  WETTING FRONT SUCTION
                      XKSAT        .07  HYDRAULIC CONDUCTIVITY
                      RTIMP       3.33  PERCENT IMPERVIOUS AREA

106 UI          INPUT UNITGRAPH,  27 ORDINATES,  VOLUME = 1.00
                        .0      18.8      31.0      74.7     116.6     150.1     172.4     179.8     167.8     139.7
                      108.2     85.8      67.0      53.1      39.9      32.5      25.6      19.9      14.3      12.8
                        9.7      4.6       4.6       4.6       4.6       4.6       4.6
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
111 KK      *    CA3     *        CNAME      3R
            *            *
            **************

112 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

113 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
114 KK      *     3R     *        CNAME     CA3
            *            *
            **************

115 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

116 RS          STORAGE ROUTING
                      NSTPS          4  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
```

```
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

117 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       2009.  REACH LENGTH
                       SEL       .0102  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
119 RY        ELEVATION   1521.30   1513.05   1508.96   1506.40   1506.06   1509.48   1515.08   1519.40
118 RX        DISTANCE        .00    173.09    233.47    284.54    338.75    411.91    515.38    596.82

                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      2.00      5.59     10.41     16.45     23.56     31.66     40.75     50.83     61.90
          OUTFLOW        .00     86.04    380.49    904.39   1726.47   2991.73   4617.77   6582.86   8898.10  11568.92
        ELEVATION    1506.06   1506.86   1507.66   1508.47   1509.27   1510.07   1510.87   1511.67   1512.48   1513.28

          STORAGE      74.09     87.45    101.99    117.71    134.61    152.69    171.96    192.36    213.50    235.27
          OUTFLOW   14606.24  18045.60  21902.09  26194.26  30939.53  36154.46  41855.41  48172.62  55195.79  62729.52
        ELEVATION    1514.08   1514.88   1515.69   1516.49   1517.29   1518.09   1518.89   1519.70   1520.50   1521.30

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       86. TO    62730.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
120 KK    *        A2  *
          *            *
          **************

121 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

122 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .14  SUBBASIN AREA

123 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .34  MOISTURE DEFICIT
                      PSIF        7.11  WETTING FRONT SUCTION
                     XKSAT         .11  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

122 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME =  .99
                       .0      30.0     114.7     199.3     226.8     177.2     111.8      70.1      44.3      28.2
                     17.0       9.3       5.8       5.8

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
126 KK    *       CA2  *        CNAME      2R
          *            *
          **************

127 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS
```

```
128 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
129 KK    *        V1  *
          *            *
          **************
                    30"RCP Under the Granite Reef Aqueduct

131 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

132 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        STOR  TYPE OF INITIAL CONDITION
                    RSVRIC         .00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

133 SA               AREA          .3       1.1       2.0       3.2       4.6       6.3       8.3      10.4      13.2

134 SE          ELEVATION     1498.00   1500.00   1502.00   1504.00   1506.00   1508.00   1510.00   1512.00   1514.00

135 SQ          DISCHARGE          4.       27.       45.       57.       67.       75.       83.       88.       92.
                                                          ***

                                          COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00      1.31      4.40      9.52     17.25     28.12     42.62     61.29     84.92
        ELEVATION    1498.00   1500.00   1502.00   1504.00   1506.00   1508.00   1510.00   1512.00   1514.00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
136 KK    *        2R  *        CNAME     CA2
          *            *
          **************

137 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

138 RS          STORAGE ROUTING
                     NSTPS           5  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

139 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       2345.  REACH LENGTH
                       SEL       .0099  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
141 RY        ELEVATION   1497.70   1491.70   1487.46   1486.26   1486.82   1490.06   1493.80   1497.21
140 RX        DISTANCE        .00     83.24    144.71    180.22    233.98    290.83    350.32    409.54
```

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	1.22	4.03	7.60	11.80	16.63	22.08	28.14	34.81	42.06
OUTFLOW	.00	31.07	181.91	477.97	901.44	1456.47	2149.36	3064.81	4175.05	5451.72
ELEVATION	1486.26	1486.86	1487.46	1488.07	1488.67	1489.27	1489.87	1490.47	1491.08	1491.68
STORAGE	49.91	58.33	67.34	76.93	87.13	97.93	109.35	121.37	134.01	147.14
OUTFLOW	6901.15	8525.95	10330.63	12318.27	14494.42	16866.28	19439.02	22217.81	25207.79	28509.71
ELEVATION	1492.28	1492.88	1493.48	1494.09	1494.69	1495.29	1495.89	1496.49	1497.10	1497.70

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 182. TO 28510.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** ***

```
            **************
            *            *
 142 KK     *        A1  *
            *            *
            **************

 143 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 144 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

 145 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .37  MOISTURE DEFICIT
                       PSIF        6.62  WETTING FRONT SUCTION
                      XKSAT         .14  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 144 UI          INPUT UNITGRAPH,  12 ORDINATES,  VOLUME = 1.00
                        .0      18.0      68.7     103.2      86.4      49.9      27.6      15.8       8.8       4.2
                      2.7       2.7
```

***

*** ***

```
            **************
            *            *
 148 KK     *       CA1  *        CNAME      1R
            *            *
            **************

 149 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 150 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
```

***

*** ***

```
            **************
            *            *
 151 KK     *        1R  *        CNAME     CA1
```

```
            *            *
            **************

152 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

153 RN          NO ROUTING

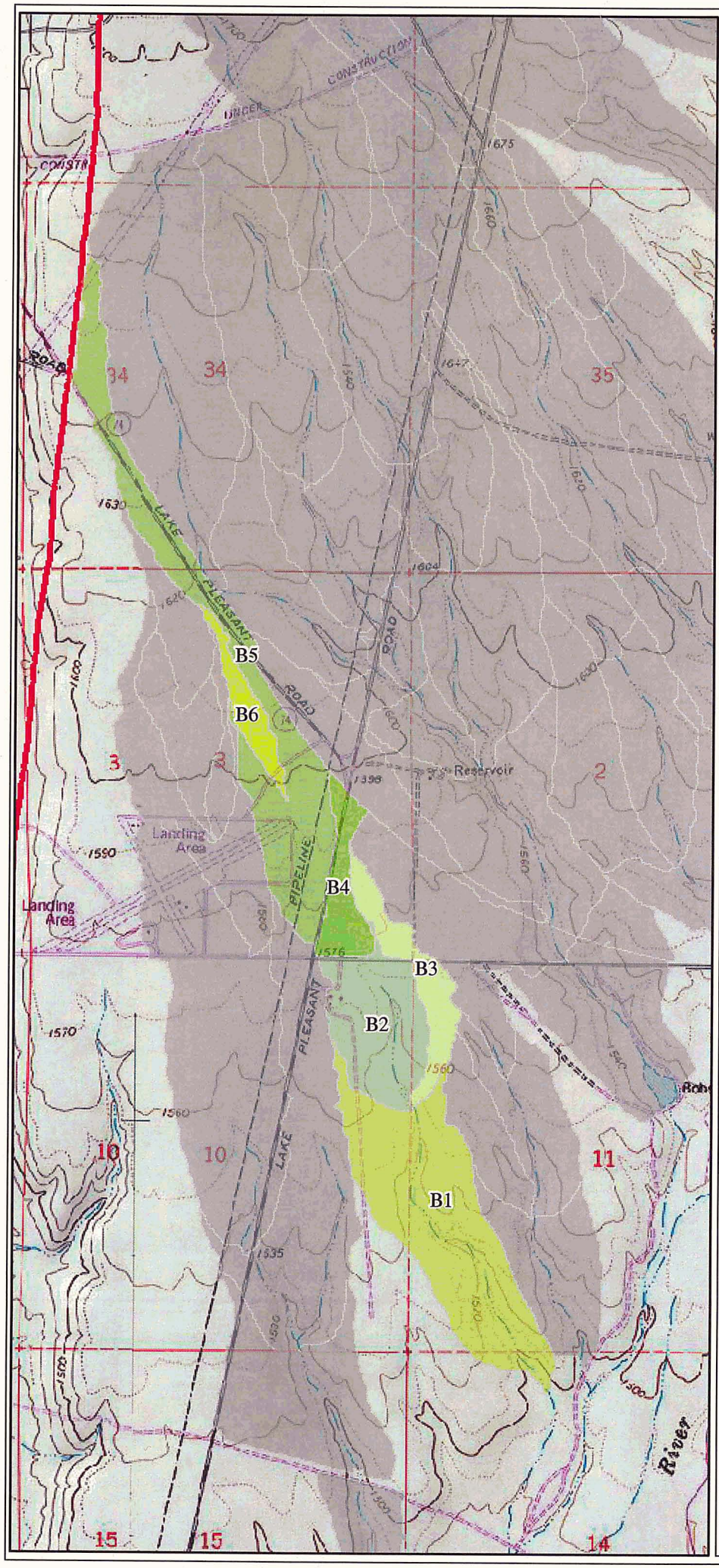
                                                  ***
1
                                          RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES

                                          PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN    MAXIMUM    TIME OF
          OPERATION        STATION       FLOW    PEAK                                          AREA     STAGE     MAX STAGE
+                                                          6-HOUR     24-HOUR     72-HOUR
          HYDROGRAPH AT
+                            A9          81.   12.25        13.         5.          5.        .04
          ROUTED TO
+                            7R          64.   12.67        12.         5.          5.        .04
          HYDROGRAPH AT
+                            A8         108.   12.25        14.         5.          5.        .05
          2 COMBINED AT
+                           CA6M        135.   12.33        26.        10.         10.        .09
          HYDROGRAPH AT
+                            A6          46.   12.25         7.         3.          3.        .02
          HYDROGRAPH AT
+                            A7          86.   12.33        10.         4.          4.        .05
          3 COMBINED AT
+                           CA6         259.   12.33        43.        16.         16.        .16
          ROUTED TO
+                            6R         241.   12.50        43.        16.         16.        .16
          HYDROGRAPH AT
+                            A5         106.   12.25        14.         6.          6.        .05
          2 COMBINED AT
+                           CA5         303.   12.42        57.        21.         21.        .22
          ROUTED TO
+                            5R         269.   13.00        56.        21.         21.        .22
          HYDROGRAPH AT
+                            A4         323.   12.50        50.        19.         19.        .26
          2 COMBINED AT
+                           CA4         419.   12.83       105.        39.         39.        .48
          ROUTED TO
+                            4R         416.   13.00       105.        39.         39.        .48
          HYDROGRAPH AT
+                            A3         277.   12.50        45.        16.         16.        .20
          2 COMBINED AT
+                           CA3         596.   12.58       148.        55.         55.        .68
          ROUTED TO
+                            3R         592.   12.67       148.        55.         55.        .68
          HYDROGRAPH AT
+                            A2         270.   12.25        25.         9.          9.        .14
          2 COMBINED AT
+                           CA2         658.   12.58       173.        64.         64.        .81
          ROUTED TO
+                            V1          88.   14.42        64.        26.         26.        .81
          ROUTED TO
+                            2R          88.   14.67        60.        24.         24.        .81
          HYDROGRAPH AT
+                            A1         112.   12.17         9.         3.          3.        .05
```

	2 COMBINED AT						
+		CA1	120.	12.17	68.	27.	27.	.86
	ROUTED TO						
+		1R	120.	12.17	68.	27.	27.	.86

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

New River West FDS
Appendix D.6.B
Basin B



LEGEND

- Project Boundary
- All Other Basins

Basin B Sub-basin IDs

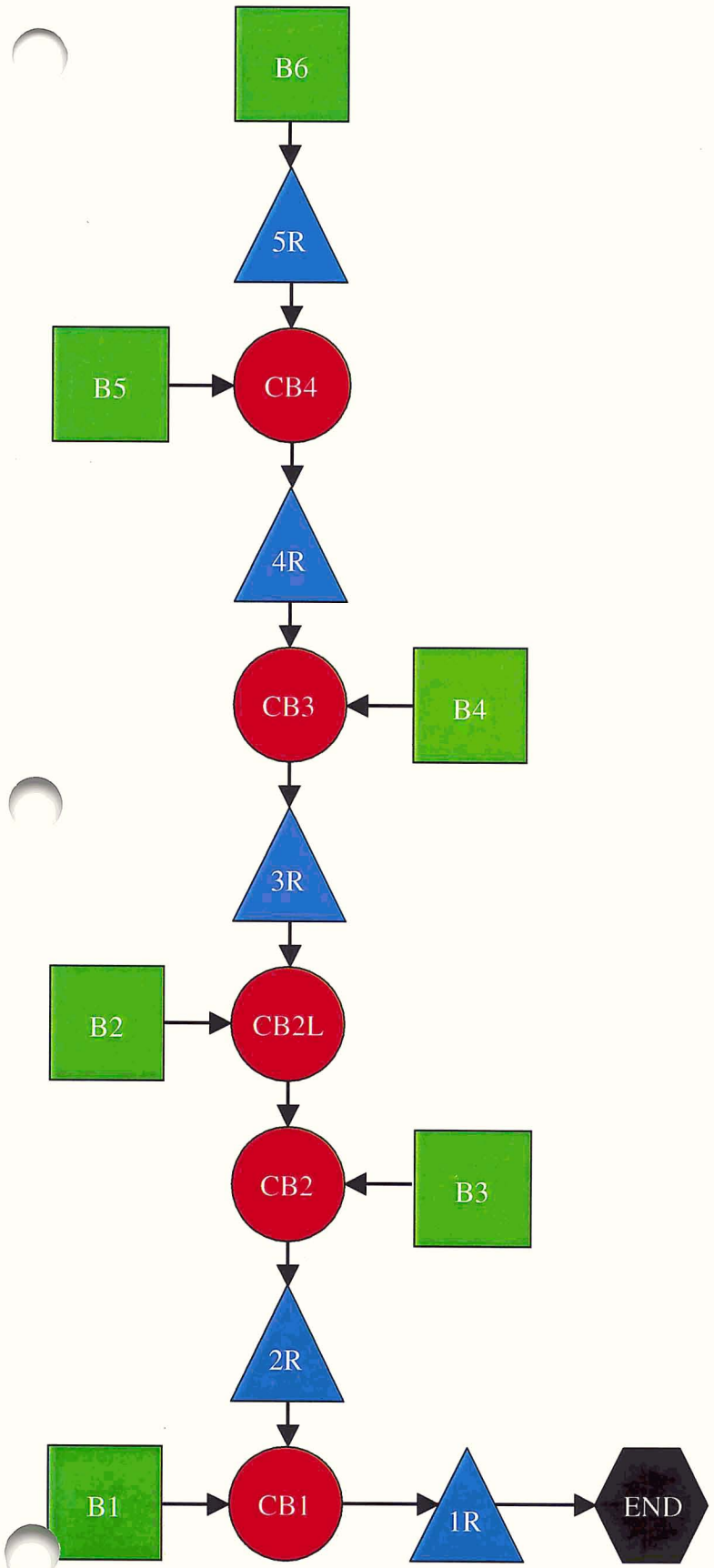
- B1
- B2
- B3
- B4
- B5
- B6

N

0 500 1,000 2,000
Feet
Scale: 1" = 2,000'

Horizontal Datum:	Data Sources:	Date: 06.09.04
NAD83 State Plane	USGS 7.5':	MCFCD Proj. No: FCD 2003-C057
AZ Central	Biscuit Flat	Proj. No: 23443706
Vertical Datum:	Baldy Mtn.	PM: M.R.
NGVD 29	MCCFCD	Checked By: M.M.
		Cartography: D.G.

P:\New_River_FDS\GIS\mxds\basins\nr_basinB.mxd



Basin B

HEC-1 Model Schematic

Sub-basin

Routing Reach

Concentration Point

End of Model

Basin B

100 – Year
6 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *             JUN   1998                *
 *           VERSION 4.1                 *
 *                                       *
 *  RUN DATE   28APR04  TIME  19:44:39   *
 *                                       *
 *****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
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  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin B - 100-Year 6-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   3.324    0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 11           PC   0.962   0.972   0.983   0.991     1.0
 12           IN      15 28APR04       0
 13           JD   3.304     0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 16           PC   0.962   0.972   0.983   0.991     1.0
 17           IN      15 28APR04       0
 18           JD    3.28     1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 20           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 21           PC  0.9572  0.9684  0.9798  0.9898     1.0
 22           IN      15 28APR04       0
 23           JD   3.191     5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 25           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 26           PC  0.9487   0.962  0.9743  0.9877     1.0

 27           KK      B6
 28           KO       0       0     0.0       1      22
 29           BA   0.024
 30           LG    0.25    0.05    12.4   0.019     0.0
              * S_Graph
 31           UI     0.0    4.16   16.38   29.55   36.46   33.22   22.83   15.07    9.87    6.58
 32           UI    4.29    2.66    1.64    0.94    0.94    0.94     0.0

 33           KK      5R   CNAME     CB5
 34           KO       0       0     0.0       0      22
 35           RS       5    FLOW    -1.0     0.0
 36           RC    0.07    0.05    0.07 2278.08   0.008     0.0
              * 5R
 37           RX     0.0  211.52  255.36  287.36  413.36  477.36  571.36  619.36
 38           RY  1592.2 1591.99 1592.01 1592.01 1591.94 1592.41 1592.45 1592.45

 39           KK      B5
 40           KO       0       0     0.0       1      22
 41           BA   0.175
 42           LG   0.242    0.08  11.673    0.03   4.479
              * S_Graph
 43           UI     0.0   11.12   11.12   22.83   40.96   58.54   73.92   87.03   98.53  104.17
 44           UI  106.53  103.17   97.08   82.18    70.7   59.67   50.65   42.94   36.39   31.29
```

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

  45          UI   25.52   21.79   19.04   17.05    12.3   11.78    9.27    7.61    7.61    7.42
  46          UI    2.71    2.71    2.71    2.71    2.71    2.71    2.71    2.71    2.71     0.0

  47          KK     CB4   CNAME      4R
  48          KO       0       0     0.0       0      22
  49          HC       2   0.199

  50          KK      4R   CNAME     CB4
  51          KO       0       0     0.0       0      22
  52          RS       2    FLOW    -1.0     0.0
  53          RC    0.07    0.05    0.07  849.96   0.003     0.0
              * 4R
  54          RX     0.0   41.15   68.02   89.65  116.52  160.36  199.56  379.62
  55          RY  1578.8 1578.09 1578.01 1578.04 1577.99 1577.75 1577.93 1578.97

  56          KK      B4
  57          KO       0       0     0.0       1      22
  58          BA   0.035
  59          LG   0.251   0.133  10.034    0.06     0.0
              * S_Graph
  60          UI     0.0    7.85   30.04    52.1   59.02   45.72   28.75   18.01   11.38    7.23
  61          UI    4.32    2.29    1.52    1.52     0.0

  62          KK     CB3   CNAME      3R
  63          KO       0       0     0.0       0      22
  64          HC       2   0.234

  65          KK      3R   CNAME     CB3
  66          KO       0       0     0.0       0      22
  67          RS       5    FLOW    -1.0     0.0
  68          RC    0.07    0.05    0.07  2481.3  0.0102     0.0
              * 3R
  69          RX     0.0  120.34  182.34  248.46  297.46   353.4  506.51  651.42
  70          RY  1570.0 1569.22 1568.13 1565.51 1566.37 1568.18 1569.68  1570.0

  71          KK      B2
  72          KO       0       0     0.0       1      22
  73          BA   0.087
  74          LG   0.234     0.2     6.5   0.232   8.566
              * S_Graph
  75          UI     0.0   20.07   76.89  132.33  148.26  111.91    70.2   43.67   27.64   16.86
  76          UI   10.79    4.89    3.84    3.84     0.0

  77          KK    CB2L   CNAME      2R
  78          KO       0       0     0.0       0      22
  79          HC       2   0.321

  80          KK      B3
  81          KO       0       0     0.0       1      22
  82          BA   0.046
  83          LG   0.282   0.116  10.604   0.048     0.0
              * S_Graph
  84          UI     0.0    5.81   16.47   34.42   48.24   55.01   52.57   40.48   29.22   21.09
  85          UI   15.11   10.92    7.86    5.67    3.98    2.86    1.41    1.41    1.41    1.41
  86          UI     0.0
```



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

  87          KK     CB2   CNAME      2R
  88          KO       0       0     0.0       0      22
  89          HC       2   0.367

  90          KK      2R   CNAME     CB2
  91          KO       0       0     0.0       0      22
  92          RS       9    FLOW    -1.0     0.0
  93          RC    0.07    0.05    0.07 5050.59  0.0105     0.0
              * 2R
  94          RX     0.0  109.57  164.64  237.72  291.03   374.7  439.24   486.2
  95          RY  1535.2 1532.04 1528.79 1523.29 1524.15  1529.7 1533.38 1535.65

  96          KK      B1
  97          KO       0       0     0.0       1      22
  98          BA  0.1910
  99          LG    0.25    0.15   7.221   0.175     0.0
              * S_Graph
 100          UI     0.0   18.74   33.53   80.17  121.01  156.63  175.55   177.4  160.32  125.98
 101          UI   97.87    76.2   58.88   45.49   35.46   28.37   19.86   15.99   12.83   10.81
 102          UI    4.56    4.56    4.56    4.56    4.56    4.56     0.0

 103          KK     CB1   CNAME      1R
 104          KO       0       0     0.0       0      22
 105          HC       2   0.558

 106          KK      1R   CNAME     CB1
 107          KO       0       0     0.0       0      22
 108          RN      1R
 109          ZZ
```

```
1
                    SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
 LINE       (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   27          B6
                V
                V
   33          5R
                .
                .
   39           .          B5
                .           .
                .           .
   47         CB4............
                V
                V
   50          4R
                .
                .
   56           .          B4
                .           .
                .           .
   62         CB3............
                V
                V
   65          3R
                .
                .
   71           .          B2
                .           .
                .           .
   77        CB2L............
                .
                .
   80           .          B3
                .           .
                .           .
   87         CB2............
                V
                V
   90          2R
                .
                .
   96           .          B1
                .           .
                .           .
  103         CB1............
                V
                V
  106          1R

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   28APR04  TIME  19:44:39  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
                        HEC-1 Analysis using WMS
                        New River West Tributaries FDS - FCD 2003 C057
                        Basin B - 100-Year 6-Hour Storm Event
                        April 2004

   6 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

   7 IN          TIME DATA FOR INPUT TIME SERIES
                        JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  12 IN          TIME DATA FOR INPUT TIME SERIES
                        JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  17 IN          TIME DATA FOR INPUT TIME SERIES
                        JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME
```

```
 22 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          15  TIME INTERVAL IN MINUTES
                    JXDATE     28APR 4  STARTING DATE
                    JXTIME           0  STARTING TIME

   IT           HYDROGRAPH TIME DATA
                      NMIN           5  MINUTES IN COMPUTATION INTERVAL
                     IDATE     28APR 4  STARTING DATE
                     ITIME        0000  STARTING TIME
                        NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE     28APR 4  ENDING DATE
                    NDTIME        1635  ENDING TIME
                     ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   16.58 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

  8 JD          INDEX STORM NO. 1
                      STRM        3.32  PRECIPITATION DEPTH
                      TRDA         .01  TRANSPOSITION DRAINAGE AREA

  9 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                     .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                     .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00

 13 JD          INDEX STORM NO. 2
                      STRM        3.30  PRECIPITATION DEPTH
                      TRDA         .50  TRANSPOSITION DRAINAGE AREA

 14 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                     .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                     .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00

 18 JD          INDEX STORM NO. 3
                      STRM        3.28  PRECIPITATION DEPTH
                      TRDA        1.00  TRANSPOSITION DRAINAGE AREA

 19 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                     .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                     .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00

 23 JD          INDEX STORM NO. 4
                      STRM        3.19  PRECIPITATION DEPTH
                      TRDA        5.00  TRANSPOSITION DRAINAGE AREA

 24 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                     .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                     .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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          *            *
 27 KK    *     B6     *
          *            *
          **************
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 28 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 29 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .02  SUBBASIN AREA

 30 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .05  MOISTURE DEFICIT
                       PSIF       12.40  WETTING FRONT SUCTION
                      XKSAT         .02  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 29 UI          INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                       .0       4.2      16.4      29.5      36.5      33.2      22.8      15.1       9.9       6.6
                      4.3       2.7       1.6        .9        .9        .9
                                                                 ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 33 KK    *         5R *         CNAME     CB5
          *            *
          **************

 34 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 35 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 36 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2278.  REACH LENGTH
                        SEL       .0080  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 38 RY        ELEVATION   1592.20   1591.99   1592.01   1592.01   1591.94   1592.41   1592.45   1592.45
 37 RX        DISTANCE        .00    211.52    255.36    287.36    413.36    477.36    571.36    619.36
                                                                 ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .04       .15       .41       .78      1.18      1.63      2.13      2.66      3.24
          OUTFLOW        .00       .11       .67      2.16      5.54     10.26     16.30     23.68     32.41     42.53
        ELEVATION    1591.94   1591.97   1591.99   1592.02   1592.05   1592.07   1592.10   1592.13   1592.15   1592.18

          STORAGE       3.86      4.50      5.14      5.78      6.43      7.09      7.75      8.41      9.09      9.85
          OUTFLOW      54.39     68.37     83.73    100.42    118.40    137.64    158.11    179.78    203.29    228.81
        ELEVATION    1592.21   1592.24   1592.26   1592.29   1592.32   1592.34   1592.37   1592.40   1592.42   1592.45


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 39 KK      *        B5  *
            *            *
            **************

 40 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 41 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .17  SUBBASIN AREA

 42 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .24  STARTING LOSS
                        DTH         .08  MOISTURE DEFICIT
                       PSIF       11.67  WETTING FRONT SUCTION
                      XKSAT         .03  HYDRAULIC CONDUCTIVITY
                      RTIMP        4.48  PERCENT IMPERVIOUS AREA

 41 UI          INPUT UNITGRAPH,  39 ORDINATES,  VOLUME = 1.00
                       .0      11.1      11.1      22.8      41.0      58.5      73.9      87.0      98.5     104.2
                    106.5     103.2      97.1      82.2      70.7      59.7      50.7      42.9      36.4      31.3
                     25.5      21.8      19.0      17.0      12.3      11.8       9.3       7.6       7.6       7.4
                      2.7       2.7       2.7       2.7       2.7       2.7       2.7       2.7       2.7
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 47 KK      *       CB4  *        CNAME      4R
            *            *
            **************

 48 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 49 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 50 KK      *        4R  *        CNAME      CB4
            *            *
            **************

 51 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 52 RS          STORAGE ROUTING
                     NSTPS           2  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00  WORKING R AND D COEFFICIENT

 53 RC          NORMAL DEPTH CHANNEL
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                    ANL        .070  LEFT OVERBANK N-VALUE
                   ANCH        .050  MAIN CHANNEL N-VALUE
                    ANR        .070  RIGHT OVERBANK N-VALUE
                  RLNTH        850.  REACH LENGTH
                    SEL       .0030  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 55 RY      ELEVATION   1578.80   1578.09   1578.01   1578.04   1577.99   1577.75   1577.93   1578.97
 54 RX      DISTANCE        .00     41.15     68.02     89.65    116.52    160.36    199.56    379.62

                                                  ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .02       .06       .14       .26       .44       .68       .93      1.21      1.50
          OUTFLOW        .00       .11       .73      2.16      4.50      8.47     15.84     25.47     37.25     51.17
        ELEVATION    1577.75   1577.81   1577.88   1577.94   1578.01   1578.07   1578.14   1578.20   1578.26   1578.33

          STORAGE       1.81      2.14      2.49      2.86      3.24      3.65      4.07      4.51      4.97      5.44
          OUTFLOW      67.24     85.47    105.89    128.55    153.47    180.69    210.27    242.85    278.20    315.99
        ELEVATION    1578.39   1578.46   1578.52   1578.58   1578.65   1578.71   1578.78   1578.84   1578.91   1578.97


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          **************
          *            *
 56 KK    *        B4  *
          *            *
          **************

 57 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 58 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .04  SUBBASIN AREA

 59 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .25  STARTING LOSS
                       DTH         .13  MOISTURE DEFICIT
                      PSIF       10.03  WETTING FRONT SUCTION
                     XKSAT         .06  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 58 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                       .0       7.8      30.0      52.1      59.0      45.7      28.8      18.0      11.4       7.2
                      4.3       2.3       1.5       1.5

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 62 KK    *       CB3  *        CNAME      3R
          *            *
          **************

 63 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


 64 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 65 KK      *        3R  *        CNAME     CB3
            *            *
            **************

 66 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 67 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 68 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2481.  REACH LENGTH
                        SEL       .0102  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 70 RY        ELEVATION   1570.00   1569.22   1568.13   1565.51   1566.37   1568.18   1569.68   1570.00
 69 RX        DISTANCE        .00    120.34    182.34    248.46    297.46    353.40    506.51    651.42

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .13       .52      1.18      2.09      3.19      4.48      5.94      7.58      9.40
          OUTFLOW        .00      1.66     10.56     31.14     68.08    124.12    198.71    293.40    409.76    549.34
        ELEVATION    1565.51   1565.75   1565.98   1566.22   1566.46   1566.69   1566.93   1567.16   1567.40   1567.64

          STORAGE      11.40     13.58     16.03     18.98     22.43     26.39     30.87     36.10     42.20     50.01
          OUTFLOW     713.62    904.10   1162.17   1465.72   1810.11   2199.58   2634.74   3121.13   3651.39   4248.56
        ELEVATION    1567.87   1568.11   1568.35   1568.58   1568.82   1569.05   1569.29   1569.53   1569.76   1570.00


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      199. TO     4249.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 71 KK      *         B2  *
            *            *
            **************

 72 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 73 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .09  SUBBASIN AREA

 74 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .23  STARTING LOSS
                        DTH         .20  MOISTURE DEFICIT
                       PSIF        6.50  WETTING FRONT SUCTION
                      XKSAT         .23  HYDRAULIC CONDUCTIVITY
                      RTIMP        8.57  PERCENT IMPERVIOUS AREA
```

```
 73 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                     .0      20.1      76.9     132.3     148.3     111.9      70.2      43.7      27.6      16.9
                   10.8       4.9       3.8       3.8
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 77 KK      *      CB2L  *        CNAME      2R
            *            *
            **************

 78 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 79 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 80 KK      *         B3 *
            *            *
            **************

 81 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 82 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

 83 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .28  STARTING LOSS
                        DTH         .12  MOISTURE DEFICIT
                       PSIF       10.60  WETTING FRONT SUCTION
                      XKSAT         .05  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 82 UI          INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                     .0       5.8      16.5      34.4      48.2      55.0      52.6      40.5      29.2      21.1
                   15.1      10.9       7.9       5.7       4.0       2.9       1.4       1.4       1.4       1.4
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 87 KK      *       CB2  *        CNAME      2R
            *            *
            **************

 88 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS
```

```
 89 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 90 KK      *        2R  *        CNAME     CB2
            *            *
            **************

 91 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

 92 RS          STORAGE ROUTING
                     NSTPS           9  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 93 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       5051.  REACH LENGTH
                       SEL       .0105  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 95 RY        ELEVATION   1535.20   1532.04   1528.79   1523.29   1524.15   1529.70   1533.38   1535.65
 94 RX        DISTANCE        .00    109.57    164.64    237.72    291.03    374.70    439.24    486.20
                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.85      6.86     13.38     21.29     30.60     41.30     53.38     66.86     81.76
          OUTFLOW        .00     22.99    151.07    398.89    769.26   1273.74   1924.55   2733.90   3713.78   4942.55
        ELEVATION    1523.29   1523.94   1524.59   1525.24   1525.89   1526.54   1527.19   1527.84   1528.49   1529.14

          STORAGE      98.21    116.31    136.11    157.59    180.90    206.68    235.04    266.09    299.87    335.95
          OUTFLOW    6445.88   8325.18  10434.03  12782.09  15361.08  18201.53  21330.91  24765.88  28526.62  32741.51
        ELEVATION    1529.80   1530.45   1531.10   1531.75   1532.40   1533.05   1533.70   1534.35   1535.00   1535.65

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      151. TO    32742.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 96 KK      *        B1  *
            *            *
            **************

 97 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 98 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .19  SUBBASIN AREA
```

```
 99 LG          GREEN AND AMPT LOSS RATE
                      STRTL          .25  STARTING LOSS
                        DTH          .15  MOISTURE DEFICIT
                       PSIF         7.22  WETTING FRONT SUCTION
                      XKSAT          .17  HYDRAULIC CONDUCTIVITY
                      RTIMP          .00  PERCENT IMPERVIOUS AREA

 98 UI          INPUT UNITGRAPH,  26 ORDINATES,  VOLUME = 1.00
                        .0      18.7      33.5      80.2     121.0     156.6     175.6     177.4     160.3     126.0
                      97.9      76.2      58.9      45.5      35.5      28.4      19.9      16.0      12.8      10.8
                       4.6       4.6       4.6       4.6       4.6       4.6
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 103 KK     *      CB1   *        CNAME      1R
            *            *
            **************

 104 KO         OUTPUT CONTROL VARIABLES
                      IPRNT            4  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                       IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT         .083  TIME INTERVAL IN HOURS

 105 HC         HYDROGRAPH COMBINATION
                      ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 106 KK     *       1R   *        CNAME      CB1
            *            *
            **************

 107 KO         OUTPUT CONTROL VARIABLES
                      IPRNT            4  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                       IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT         .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 108 RN         NO ROUTING
                                                                  ***
1
                                                RUNOFF SUMMARY
                                          FLOW IN CUBIC FEET PER SECOND
                                       TIME IN HOURS,  AREA IN SQUARE MILES

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

        HYDROGRAPH AT
+                            B6      60.    4.25            7.          3.          3.       .02

        ROUTED TO
+                            5R      34.    5.00            7.          3.          3.       .02

        HYDROGRAPH AT
+                            B5     232.    4.67           49.         18.         18.       .17

        2 COMBINED AT
+                           CB4     258.    4.75           56.         20.         20.       .20

        ROUTED TO
+                            4R     249.    4.92           55.         20.         20.       .20
```

	HYDROGRAPH AT							
+		B4	88.	4.25	9.	3.	3.	.04
	2 COMBINED AT							
+		CB3	254.	4.92	64.	23.	23.	.23
	ROUTED TO							
+		3R	251.	5.08	64.	23.	23.	.23
	HYDROGRAPH AT							
+		B2	200.	4.25	18.	7.	7.	.09
	2 COMBINED AT							
+		CB2L	254.	5.08	82.	30.	30.	.32
	HYDROGRAPH AT							
+		B3	96.	4.33	12.	4.	4.	.05
	2 COMBINED AT							
+		CB2	349.	4.33	93.	34.	34.	.37
	ROUTED TO							
+		2R	331.	4.67	93.	34.	34.	.37
	HYDROGRAPH AT							
+		B1	301.	4.42	41.	15.	15.	.19
	2 COMBINED AT							
+		CB1	577.	4.58	133.	48.	48.	.56
	ROUTED TO							
+		1R	577.	4.58	133.	48.	48.	.56

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

Basin B

100 – Year
24 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             JUN   1998               *
*           VERSION 4.1                *
*                                      *
* RUN DATE   28APR04  TIME  19:47:49   *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin B - 100-Year 24-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   4.185    0.01
              * 24-hour distribution
  9           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 10           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 11           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 12           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 13           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 14           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 15           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 16           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 17           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 18           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 19           IN      15 28APR04       0
 20           JD   3.976    10.0
              * 24-hour distribution
 21           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 23           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 24           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 28           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 30           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

 31           KK      B6
 32           KO       0       0     0.0       1      22
 33           BA   0.024
 34           LG    0.25    0.05    12.4   0.019     0.0
              * S_Graph
 35           UI     0.0    4.16   16.38   29.55   36.46   33.22   22.83   15.07    9.87    6.58
 36           UI    4.29    2.66    1.64    0.94    0.94    0.94     0.0

 37           KK      5R   CNAME     CB5
 38           KO       0       0     0.0       0      22
 39           RS       5    FLOW    -1.0     0.0
 40           RC    0.07    0.05    0.07 2278.08   0.008     0.0
              * 5R
 41           RX     0.0  211.52  255.36  287.36  413.36  477.36  571.36  619.36
 42           RY  1592.2 1591.99 1592.01 1592.01 1591.94 1592.41 1592.45 1592.45
```



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

 43           KK      B5
```

```
 44          KO       0       0     0.0       1      22
 45          BA   0.175
 46          LG   0.242    0.08  11.673    0.03   4.479
             * S_Graph
 47          UI     0.0   11.12   11.12   22.83   40.96   58.54   73.92   87.03   98.53  104.17
 48          UI  106.53  103.17   97.08   82.18    70.7   59.67   50.65   42.94   36.39   31.29
 49          UI   25.52   21.79   19.04   17.05    12.3   11.78    9.27    7.61    7.61    7.42
 50          UI    2.71    2.71    2.71    2.71    2.71    2.71    2.71    2.71    2.71     0.0

 51          KK     CB4   CNAME      4R
 52          KO       0       0     0.0       0      22
 53          HC       2   0.199

 54          KK      4R   CNAME     CB4
 55          KO       0       0     0.0       0      22
 56          RS       2    FLOW    -1.0     0.0
 57          RC    0.07    0.05    0.07  849.96   0.003     0.0
             * 4R
 58          RX     0.0   41.15   68.02   89.65  116.52  160.36  199.56  379.62
 59          RY  1578.8 1578.09 1578.01 1578.04 1577.99 1577.75 1577.93 1578.97

 60          KK      B4
 61          KO       0       0     0.0       1      22
 62          BA   0.035
 63          LG   0.251   0.133  10.034    0.06     0.0
             * S_Graph
 64          UI     0.0    7.85   30.04    52.1   59.02   45.72   28.75   18.01   11.38    7.23
 65          UI    4.32    2.29    1.52    1.52     0.0

 66          KK     CB3   CNAME      3R
 67          KO       0       0     0.0       0      22
 68          HC       2   0.234

 69          KK      3R   CNAME     CB3
 70          KO       0       0     0.0       0      22
 71          RS       5    FLOW    -1.0     0.0
 72          RC    0.07    0.05    0.07  2481.3  0.0102     0.0
             * 3R
 73          RX     0.0  120.34  182.34  248.46  297.46   353.4  506.51  651.42
 74          RY  1570.0 1569.22 1568.13 1565.51 1566.37 1568.18 1569.68  1570.0

 75          KK      B2
 76          KO       0       0     0.0       1      22
 77          BA   0.087
 78          LG   0.234     0.2     6.5   0.232   8.566
             * S_Graph
 79          UI     0.0   20.07   76.89  132.33  148.26  111.91    70.2   43.67   27.64   16.86
 80          UI   10.79    4.89    3.84    3.84     0.0
1                                         HEC-1  INPUT                                                PAGE  3

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

 81          KK    CB2L   CNAME      2R
 82          KO       0       0     0.0       0      22
 83          HC       2   0.321

 84          KK      B3
 85          KO       0       0     0.0       1      22
 86          BA   0.046
 87          LG   0.282   0.116  10.604   0.048     0.0
             * S_Graph
 88          UI     0.0    5.81   16.47   34.42   48.24   55.01   52.57   40.48   29.22   21.09
 89          UI   15.11   10.92    7.86    5.67    3.98    2.86    1.41    1.41    1.41    1.41
 90          UI     0.0

 91          KK     CB2   CNAME      2R
 92          KO       0       0     0.0       0      22
 93          HC       2   0.367

 94          KK      2R   CNAME     CB2
 95          KO       0       0     0.0       0      22
 96          RS       9    FLOW    -1.0     0.0
 97          RC    0.07    0.05    0.07 5050.59  0.0105     0.0
             * 2R
 98          RX     0.0  109.57  164.64  237.72  291.03   374.7  439.24   486.2
 99          RY  1535.2 1532.04 1528.79 1523.29 1524.15  1529.7 1533.38 1535.65

100          KK      B1
101          KO       0       0     0.0       1      22
102          BA  0.1910
103          LG    0.25    0.15   7.221   0.175     0.0
             * S_Graph
104          UI     0.0   18.74   33.53   80.17  121.01  156.63  175.55   177.4  160.32  125.98
105          UI   97.87    76.2   58.88   45.49   35.46   28.37   19.86   15.99   12.83   10.81
106          UI    4.56    4.56    4.56    4.56    4.56    4.56     0.0

107          KK     CB1   CNAME      1R
108          KO       0       0     0.0       0      22
109          HC       2   0.558

110          KK      1R   CNAME     CB1
111          KO       0       0     0.0       0      22
```

```
            112            RN      1R
            113            ZZ
1
                 SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

    31          B6
                 V
                 V
    37          5R
                 .
                 .
    43           .           B5
                 .            .
                 .            .
    51         CB4............
                 V
                 V
    54          4R
                 .
                 .
    60           .           B4
                 .            .
                 .            .
    66         CB3............
                 V
                 V
    69          3R
                 .
                 .
    75           .           B2
                 .            .
                 .            .
    81        CB2L............
                 .
                 .
    84           .           B3
                 .            .
                 .            .
    91         CB2............
                 V
                 V
    94          2R
                 .
                 .
   100           .           B1
                 .            .
                 .            .
   107         CB1............
                 V
                 V
   110          1R

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   28APR04  TIME  19:47:49  *
 *                                      *
 ****************************************
```

```
 ****************************************
 *                                      *
 *    U.S. ARMY CORPS OF ENGINEERS      *
 *    HYDROLOGIC ENGINEERING CENTER     *
 *          609 SECOND STREET           *
 *       DAVIS, CALIFORNIA 95616        *
 *           (916) 756-1104             *
 *                                      *
 ****************************************
```

```
                        HEC-1 Analysis using WMS
                        New River West Tributaries FDS - FCD 2003 C057
                        Basin B - 100-Year 24-Hour Storm Event
                        April 2004

   6 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

   7 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  19 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

     IT          HYDROGRAPH TIME DATA
                        NMIN           5  MINUTES IN COMPUTATION INTERVAL
```

```
                IDATE     28APR 4  STARTING DATE
                ITIME        0000  STARTING TIME
                   NQ         200  NUMBER OF HYDROGRAPH ORDINATES
               NDDATE     28APR 4  ENDING DATE
               NDTIME        1635  ENDING TIME
               ICENT           19  CENTURY MARK

          COMPUTATION INTERVAL     .08 HOURS
               TOTAL TIME BASE   16.58 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

  8 JD        INDEX STORM NO. 1
                STRM        4.18  PRECIPITATION DEPTH
                TRDA         .01  TRANSPOSITION DRAINAGE AREA

  9 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                  .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                  .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00

 20 JD        INDEX STORM NO. 2
                STRM        3.98  PRECIPITATION DEPTH
                TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 21 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                  .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                  .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00
```

*** ***

```
          **************
          *            *
 31 KK    *        B6  *
          *            *
          **************

 32 KO        OUTPUT CONTROL VARIABLES
                IPRNT           4  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE
                IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                 IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT        .083  TIME INTERVAL IN HOURS
```

```
              SUBBASIN RUNOFF DATA

 33 BA          SUBBASIN CHARACTERISTICS
                      TAREA          .02  SUBBASIN AREA

 34 LG          GREEN AND AMPT LOSS RATE
                      STRTL          .25  STARTING LOSS
                        DTH          .05  MOISTURE DEFICIT
                       PSIF        12.40  WETTING FRONT SUCTION
                      XKSAT          .02  HYDRAULIC CONDUCTIVITY
                      RTIMP          .00  PERCENT IMPERVIOUS AREA

 33 UI          INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                       .0       4.2      16.4      29.5      36.5      33.2      22.8      15.1       9.9       6.6
                      4.3       2.7       1.6        .9        .9        .9
                                                                 ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 37 KK      *        5R  *        CNAME     CB5
            *            *
            **************

 38 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

 39 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 40 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2278.  REACH LENGTH
                        SEL       .0080  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 42 RY        ELEVATION   1592.20   1591.99   1592.01   1592.01   1591.94   1592.41   1592.45   1592.45
 41 RX        DISTANCE        .00    211.52    255.36    287.36    413.36    477.36    571.36    619.36

                                                                 ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .04       .15       .41       .78      1.18      1.63      2.13      2.66      3.24
          OUTFLOW        .00       .11       .67      2.16      5.54     10.26     16.30     23.68     32.41     42.53
        ELEVATION    1591.94   1591.97   1591.99   1592.02   1592.05   1592.07   1592.10   1592.13   1592.15   1592.18

          STORAGE       3.86      4.50      5.14      5.78      6.43      7.09      7.75      8.41      9.09      9.85
          OUTFLOW      54.39     68.37     83.73    100.42    118.40    137.64    158.11    179.78    203.29    228.81
        ELEVATION    1592.21   1592.24   1592.26   1592.29   1592.32   1592.34   1592.37   1592.40   1592.42   1592.45


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 43 KK      *        B5  *
            *            *
            **************

 44 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
```

```
                    TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 45 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .17  SUBBASIN AREA

 46 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .24  STARTING LOSS
                       DTH         .08  MOISTURE DEFICIT
                      PSIF       11.67  WETTING FRONT SUCTION
                     XKSAT         .03  HYDRAULIC CONDUCTIVITY
                     RTIMP        4.48  PERCENT IMPERVIOUS AREA

 45 UI          INPUT UNITGRAPH,  39 ORDINATES,  VOLUME = 1.00
                      .0      11.1      11.1      22.8      41.0      58.5      73.9      87.0      98.5     104.2
                   106.5     103.2      97.1      82.2      70.7      59.7      50.7      42.9      36.4      31.3
                    25.5      21.8      19.0      17.0      12.3      11.8       9.3       7.6       7.6       7.4
                     2.7       2.7       2.7       2.7       2.7       2.7       2.7       2.7       2.7
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 51 KK    *       CB4  *        CNAME      4R
          *            *
          **************

 52 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

 53 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 54 KK    *         4R *        CNAME      CB4
          *            *
          **************

 55 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

 56 RS          STORAGE ROUTING
                    NSTPS           2  NUMBER OF SUBREACHES
                     ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                        X         .00 WORKING R AND D COEFFICIENT

 57 RC          NORMAL DEPTH CHANNEL
                      ANL        .070  LEFT OVERBANK N-VALUE
                     ANCH        .050  MAIN CHANNEL N-VALUE
                      ANR        .070  RIGHT OVERBANK N-VALUE
                    RLNTH        850.  REACH LENGTH
                      SEL       .0030  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 59 RY        ELEVATION   1578.80   1578.09   1578.01   1578.04   1577.99   1577.75   1577.93   1578.97
 58 RX        DISTANCE        .00     41.15     68.02     89.65    116.52    160.36    199.56    379.62
```

```
                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .02       .06       .14       .26       .44       .68       .93      1.21      1.50
          OUTFLOW        .00       .11       .73      2.16      4.50      8.47     15.84     25.47     37.25     51.17
        ELEVATION    1577.75   1577.81   1577.88   1577.94   1578.01   1578.07   1578.14   1578.20   1578.26   1578.33

          STORAGE       1.81      2.14      2.49      2.86      3.24      3.65      4.07      4.51      4.97      5.44
          OUTFLOW      67.24     85.47    105.89    128.55    153.47    180.69    210.27    242.85    278.20    315.99
        ELEVATION    1578.39   1578.46   1578.52   1578.58   1578.65   1578.71   1578.78   1578.84   1578.91   1578.97


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 60 KK    *        B4  *
          *            *
          **************

 61 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 62 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .04  SUBBASIN AREA

 63 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .13  MOISTURE DEFICIT
                       PSIF       10.03  WETTING FRONT SUCTION
                      XKSAT         .06  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 62 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                        .0       7.8      30.0      52.1      59.0      45.7      28.8      18.0      11.4       7.2
                      4.3       2.3       1.5       1.5
                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 66 KK    *       CB3  *        CNAME      3R
          *            *
          **************

 67 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 68 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 69 KK    *         3R *        CNAME     CB3
          *            *
          **************

 70 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
```

```
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 71 RS        STORAGE ROUTING
                   NSTPS          5  NUMBER OF SUBREACHES
                    ITYP       FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC      -1.00  INITIAL CONDITION
                       X        .00 WORKING R AND D COEFFICIENT

 72 RC        NORMAL DEPTH CHANNEL
                     ANL       .070  LEFT OVERBANK N-VALUE
                    ANCH       .050  MAIN CHANNEL N-VALUE
                     ANR       .070  RIGHT OVERBANK N-VALUE
                   RLNTH      2481.  REACH LENGTH
                     SEL      .0102  ENERGY SLOPE
                   ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                        CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 74 RY       ELEVATION   1570.00   1569.22   1568.13   1565.51   1566.37   1568.18   1569.68   1570.00
 73 RX       DISTANCE        .00    120.34    182.34    248.46    297.46    353.40    506.51    651.42

                                                   ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .13       .52      1.18      2.09      3.19      4.48      5.94      7.58      9.40
          OUTFLOW        .00      1.66     10.56     31.14     68.08    124.12    198.71    293.40    409.76    549.34
        ELEVATION    1565.51   1565.75   1565.98   1566.22   1566.46   1566.69   1566.93   1567.16   1567.40   1567.64

          STORAGE      11.40     13.58     16.03     18.98     22.43     26.39     30.87     36.10     42.20     50.01
          OUTFLOW     713.62    904.10   1162.17   1465.72   1810.11   2199.58   2634.74   3121.13   3651.39   4248.56
        ELEVATION    1567.87   1568.11   1568.35   1568.58   1568.82   1569.05   1569.29   1569.53   1569.76   1570.00


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      199. TO     4249.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 75 KK    *        B2  *
          *            *
          **************

 76 KO        OUTPUT CONTROL VARIABLES
                   IPRNT          4  PRINT CONTROL
                   IPLOT          0  PLOT CONTROL
                   QSCAL         0.  HYDROGRAPH PLOT SCALE
                   IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                    IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT       .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 77 BA        SUBBASIN CHARACTERISTICS
                   TAREA        .09  SUBBASIN AREA

 78 LG        GREEN AND AMPT LOSS RATE
                   STRTL        .23  STARTING LOSS
                     DTH        .20  MOISTURE DEFICIT
                    PSIF       6.50  WETTING FRONT SUCTION
                   XKSAT        .23  HYDRAULIC CONDUCTIVITY
                   RTIMP       8.57  PERCENT IMPERVIOUS AREA

 77 UI        INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                     .0      20.1      76.9     132.3     148.3     111.9      70.2      43.7      27.6      16.9
                   10.8       4.9       3.8       3.8

                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
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```
                *            *
 81 KK          *     CB2L   *        CNAME      2R
                *            *
                **************

 82 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS


 83 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                **************
                *            *
 84 KK          *      B3    *
                *            *
                **************

 85 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 86 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .05  SUBBASIN AREA

 87 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .28  STARTING LOSS
                        DTH        .12  MOISTURE DEFICIT
                       PSIF      10.60  WETTING FRONT SUCTION
                      XKSAT        .05  HYDRAULIC CONDUCTIVITY
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

 86 UI          INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                        .0       5.8      16.5      34.4      48.2      55.0      52.6      40.5      29.2      21.1
                      15.1      10.9       7.9       5.7       4.0       2.9       1.4       1.4       1.4       1.4
                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                **************
                *            *
 91 KK          *     CB2    *        CNAME      2R
                *            *
                **************

 92 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS


 93 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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                **************
                *            *
 94 KK          *        2R  *        CNAME     CB2
                *            *
                **************

 95 KO            OUTPUT CONTROL VARIABLES
                        IPRNT          4  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE
                        IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                         IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT       .083  TIME INTERVAL IN HOURS


                HYDROGRAPH ROUTING DATA

 96 RS            STORAGE ROUTING
                       NSTPS          9  NUMBER OF SUBREACHES
                        ITYP       FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC      -1.00  INITIAL CONDITION
                           X        .00 WORKING R AND D COEFFICIENT

 97 RC            NORMAL DEPTH CHANNEL
                         ANL       .070  LEFT OVERBANK N-VALUE
                        ANCH       .050  MAIN CHANNEL N-VALUE
                         ANR       .070  RIGHT OVERBANK N-VALUE
                       RLNTH      5051.  REACH LENGTH
                         SEL      .0105  ENERGY SLOPE
                       ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 99 RY        ELEVATION   1535.20   1532.04   1528.79   1523.29   1524.15   1529.70   1533.38   1535.65
 98 RX        DISTANCE        .00    109.57    164.64    237.72    291.03    374.70    439.24    486.20

                                                          ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.85      6.86     13.38     21.29     30.60     41.30     53.38     66.86     81.76
          OUTFLOW        .00     22.99    151.07    398.89    769.26   1273.74   1924.55   2733.90   3713.78   4942.55
        ELEVATION    1523.29   1523.94   1524.59   1525.24   1525.89   1526.54   1527.19   1527.84   1528.49   1529.14

          STORAGE      98.21    116.31    136.11    157.59    180.90    206.68    235.04    266.09    299.87    335.95
          OUTFLOW    6445.88   8325.18  10434.03  12782.09  15361.08  18201.53  21330.91  24765.88  28526.62  32741.51
        ELEVATION    1529.80   1530.45   1531.10   1531.75   1532.40   1533.05   1533.70   1534.35   1535.00   1535.65

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      151. TO     32742.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                **************
                *            *
100 KK          *         B1  *
                *            *
                **************

101 KO           OUTPUT CONTROL VARIABLES
                        IPRNT          4  PRINT CONTROL
                        IPLOT          0  PLOT CONTROL
                        QSCAL         0.  HYDROGRAPH PLOT SCALE
                        IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                         IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT       .083  TIME INTERVAL IN HOURS


                SUBBASIN RUNOFF DATA

102 BA           SUBBASIN CHARACTERISTICS
                        TAREA        .19  SUBBASIN AREA

103 LG           GREEN AND AMPT LOSS RATE
                       STRTL        .25  STARTING LOSS
                         DTH        .15  MOISTURE DEFICIT
                        PSIF       7.22  WETTING FRONT SUCTION
                       XKSAT        .17  HYDRAULIC CONDUCTIVITY
                       RTIMP        .00  PERCENT IMPERVIOUS AREA

102 UI           INPUT UNITGRAPH,  26 ORDINATES,  VOLUME = 1.00
                          .0      18.7      33.5      80.2     121.0     156.6     175.6     177.4     160.3     126.0
                         97.9      76.2      58.9      45.5      35.5      28.4      19.9      16.0      12.8      10.8
                          4.6       4.6       4.6       4.6       4.6       4.6
```

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                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 107 KK     *       CB1  *        CNAME      1R
            *            *
            **************

 108 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 109 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 110 KK     *        1R  *        CNAME      CB1
            *            *
            **************

 111 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 112 RN          NO ROUTING

                                                  ***
1
                                        RUNOFF SUMMARY
                                   FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES

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

          HYDROGRAPH AT
+                            B6           52.   12.25        8.          3.          3.        .02
          ROUTED TO
+                            5R           30.   13.00        8.          3.          3.        .02
          HYDROGRAPH AT
+                            B5          200.   12.67       53.         20.         20.        .17
          2 COMBINED AT
+                           CB4          223.   12.75       60.         22.         22.        .20
          ROUTED TO
+                            4R          216.   12.92       60.         22.         22.        .20
          HYDROGRAPH AT
+                            B4           76.   12.25        9.          3.          3.        .04
          2 COMBINED AT
+                           CB3          226.   12.92       69.         25.         25.        .23
          ROUTED TO
+                            3R          223.   13.08       68.         25.         25.        .23
          HYDROGRAPH AT
+                            B2          173.   12.25       16.          6.          6.        .09
```

	2 COMBINED AT							
+		CB2L	241.	12.33	84.	31.	31.	.32
	HYDROGRAPH AT							
+		B3	83.	12.33	13.	5.	5.	.05
	2 COMBINED AT							
+		CB2	323.	12.33	96.	35.	35.	.37
	ROUTED TO							
+		2R	305.	12.67	94.	34.	34.	.37
	HYDROGRAPH AT							
+		B1	261.	12.42	37.	13.	13.	.19
	2 COMBINED AT							
+		CB1	527.	12.58	130.	47.	47.	.56
	ROUTED TO							
+		1R	527.	12.58	130.	47.	47.	.56

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

```
1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN   1998               *
 *            VERSION 4.1                *
 *                                       *
 *  RUN DATE   28APR04  TIME  19:44:39   *
 *                                       *
 *****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin B - 100-Year 6-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   3.324    0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 11           PC   0.962   0.972   0.983   0.991     1.0
 12           IN      15 28APR04       0
 13           JD   3.304     0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 16           PC   0.962   0.972   0.983   0.991     1.0
 17           IN      15 28APR04       0
 18           JD    3.28     1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 20           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 21           PC  0.9572  0.9684  0.9798  0.9898     1.0
 22           IN      15 28APR04       0
 23           JD   3.191     5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 25           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 26           PC  0.9487   0.962  0.9743  0.9877     1.0

 27           KK      B6
 28           KO       0       0     0.0       1      22
 29           BA   0.024
 30           LG    0.25    0.05    12.4   0.019     0.0
              * S_Graph
 31           UI     0.0    4.16   16.38   29.55   36.46   33.22   22.83   15.07    9.87    6.58
 32           UI    4.29    2.66    1.64    0.94    0.94    0.94     0.0

 33           KK      5R   CNAME     CB5
 34           KO       0       0     0.0       0      22
 35           RS       5    FLOW    -1.0     0.0
 36           RC    0.07    0.05    0.07 2278.08   0.008     0.0
              * 5R
 37           RX     0.0  211.52  255.36  287.36  413.36  477.36  571.36  619.36
 38           RY  1592.2 1591.99 1592.01 1592.01 1591.94 1592.41 1592.45 1592.45

 39           KK      B5
 40           KO       0       0     0.0       1      22
 41           BA   0.175
 42           LG   0.242    0.08  11.673    0.03   4.479
              * S_Graph
 43           UI     0.0   11.12   11.12   22.83   40.96   58.54   73.92   87.03   98.53  104.17
 44           UI  106.53  103.17   97.08   82.18    70.7   59.67   50.65   42.94   36.39   31.29
```

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

  45          UI   25.52   21.79   19.04   17.05    12.3   11.78    9.27    7.61    7.61    7.42
  46          UI    2.71    2.71    2.71    2.71    2.71    2.71    2.71    2.71    2.71     0.0

  47          KK     CB4   CNAME      4R
  48          KO       0       0     0.0       0      22
  49          HC       2   0.199

  50          KK      4R   CNAME     CB4
  51          KO       0       0     0.0       0      22
  52          RS       2    FLOW    -1.0     0.0
  53          RC    0.07    0.05    0.07  849.96   0.003     0.0
              * 4R
  54          RX     0.0   41.15   68.02   89.65  116.52  160.36  199.56  379.62
  55          RY  1578.8 1578.09 1578.01 1578.04 1577.99 1577.75 1577.93 1578.97

  56          KK      B4
  57          KO       0       0     0.0       1      22
  58          BA   0.035
  59          LG   0.251   0.133  10.034    0.06     0.0
              * S_Graph
  60          UI     0.0    7.85   30.04    52.1   59.02   45.72   28.75   18.01   11.38    7.23
  61          UI    4.32    2.29    1.52    1.52     0.0

  62          KK     CB3   CNAME      3R
  63          KO       0       0     0.0       0      22
  64          HC       2   0.234

  65          KK      3R   CNAME     CB3
  66          KO       0       0     0.0       0      22
  67          RS       5    FLOW    -1.0     0.0
  68          RC    0.07    0.05    0.07  2481.3  0.0102     0.0
              * 3R
  69          RX     0.0  120.34  182.34  248.46  297.46   353.4  506.51  651.42
  70          RY  1570.0 1569.22 1568.13 1565.51 1566.37 1568.18 1569.68  1570.0

  71          KK      B2
  72          KO       0       0     0.0       1      22
  73          BA   0.087
  74          LG   0.234     0.2     6.5   0.232   8.566
              * S_Graph
  75          UI     0.0   20.07   76.89  132.33  148.26  111.91    70.2   43.67   27.64   16.86
  76          UI   10.79    4.89    3.84    3.84     0.0

  77          KK    CB2L   CNAME      2R
  78          KO       0       0     0.0       0      22
  79          HC       2   0.321

  80          KK      B3
  81          KO       0       0     0.0       1      22
  82          BA   0.046
  83          LG   0.282   0.116  10.604   0.048     0.0
              * S_Graph
  84          UI     0.0    5.81   16.47   34.42   48.24   55.01   52.57   40.48   29.22   21.09
  85          UI   15.11   10.92    7.86    5.67    3.98    2.86    1.41    1.41    1.41    1.41
  86          UI     0.0
```



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

  87          KK     CB2   CNAME      2R
  88          KO       0       0     0.0       0      22
  89          HC       2   0.367

  90          KK      2R   CNAME     CB2
  91          KO       0       0     0.0       0      22
  92          RS       9    FLOW    -1.0     0.0
  93          RC    0.07    0.05    0.07 5050.59  0.0105     0.0
              * 2R
  94          RX     0.0  109.57  164.64  237.72  291.03   374.7  439.24   486.2
  95          RY  1535.2 1532.04 1528.79 1523.29 1524.15  1529.7 1533.38 1535.65

  96          KK      B1
  97          KO       0       0     0.0       1      22
  98          BA  0.1910
  99          LG    0.25    0.15   7.221   0.175     0.0
              * S_Graph
 100          UI     0.0   18.74   33.53   80.17  121.01  156.63  175.55   177.4  160.32  125.98
 101          UI   97.87    76.2   58.88   45.49   35.46   28.37   19.86   15.99   12.83   10.81
 102          UI    4.56    4.56    4.56    4.56    4.56    4.56     0.0

 103          KK     CB1   CNAME      1R
 104          KO       0       0     0.0       0      22
 105          HC       2   0.558

 106          KK      1R   CNAME     CB1
 107          KO       0       0     0.0       0      22
 108          RN      1R
 109          ZZ
```

```
1
                    SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE       (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

    27          B6
                 V
                 V
    33          5R
                 .
                 .
    39           .          B5
                 .           .
                 .           .
    47         CB4............
                 V
                 V
    50          4R
                 .
                 .
    56           .          B4
                 .           .
                 .           .
    62         CB3............
                 V
                 V
    65          3R
                 .
                 .
    71           .          B2
                 .           .
                 .           .
    77        CB2L............
                 .
                 .
    80           .          B3
                 .           .
                 .           .
    87         CB2............
                 V
                 V
    90          2R
                 .
                 .
    96           .          B1
                 .           .
                 .           .
   103         CB1............
                 V
                 V
   106          1R

 (***)..RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   28APR04  TIME  19:44:39  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*           609 SECOND STREET          *
*        DAVIS, CALIFORNIA 95616       *
*            (916) 756-1104            *
*                                      *
****************************************
```

```
                        HEC-1 Analysis using WMS
                        New River West Tributaries FDS - FCD 2003 C057
                        Basin B - 100-Year 6-Hour Storm Event
                        April 2004

   6 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

   7 IN          TIME DATA FOR INPUT TIME SERIES
                        JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  12 IN          TIME DATA FOR INPUT TIME SERIES
                        JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  17 IN          TIME DATA FOR INPUT TIME SERIES
                        JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME
```

```
22 IN          TIME DATA FOR INPUT TIME SERIES
                    JXMIN          15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME           0  STARTING TIME

   IT          HYDROGRAPH TIME DATA
                     NMIN           5  MINUTES IN COMPUTATION INTERVAL
                    IDATE     28APR 4  STARTING DATE
                    ITIME        0000  STARTING TIME
                       NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     28APR 4  ENDING DATE
                   NDTIME        1635  ENDING TIME
                    ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   16.58 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

 8 JD        INDEX STORM NO. 1
                   STRM        3.32  PRECIPITATION DEPTH
                   TRDA         .01  TRANSPOSITION DRAINAGE AREA

 9 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

13 JD        INDEX STORM NO. 2
                   STRM        3.30  PRECIPITATION DEPTH
                   TRDA         .50  TRANSPOSITION DRAINAGE AREA

14 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

18 JD        INDEX STORM NO. 3
                   STRM        3.28  PRECIPITATION DEPTH
                   TRDA        1.00  TRANSPOSITION DRAINAGE AREA

19 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

23 JD        INDEX STORM NO. 4
                   STRM        3.19  PRECIPITATION DEPTH
                   TRDA        5.00  TRANSPOSITION DRAINAGE AREA

24 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                  .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
27 KK     *        B6  *
          *            *
          **************
```

```
 28 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 29 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .02  SUBBASIN AREA

 30 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .05  MOISTURE DEFICIT
                       PSIF       12.40  WETTING FRONT SUCTION
                      XKSAT         .02  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 29 UI          INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                       .0       4.2      16.4      29.5      36.5      33.2      22.8      15.1       9.9       6.6
                      4.3       2.7       1.6        .9        .9        .9
                                                                 ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 33 KK    *        5R  *        CNAME     CB5
          *            *
          **************

 34 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 35 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 36 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2278.  REACH LENGTH
                        SEL       .0080  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 38 RY        ELEVATION   1592.20   1591.99   1592.01   1592.01   1591.94   1592.41   1592.45   1592.45
 37 RX        DISTANCE        .00    211.52    255.36    287.36    413.36    477.36    571.36    619.36
                                                                 ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .04       .15       .41       .78      1.18      1.63      2.13      2.66      3.24
          OUTFLOW        .00       .11       .67      2.16      5.54     10.26     16.30     23.68     32.41     42.53
        ELEVATION    1591.94   1591.97   1591.99   1592.02   1592.05   1592.07   1592.10   1592.13   1592.15   1592.18

          STORAGE       3.86      4.50      5.14      5.78      6.43      7.09      7.75      8.41      9.09      9.85
          OUTFLOW      54.39     68.37     83.73    100.42    118.40    137.64    158.11    179.78    203.29    228.81
        ELEVATION    1592.21   1592.24   1592.26   1592.29   1592.32   1592.34   1592.37   1592.40   1592.42   1592.45


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
```

```
 39 KK      *        B5  *
            *            *
            **************

 40 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 41 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .17  SUBBASIN AREA

 42 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .24  STARTING LOSS
                        DTH         .08  MOISTURE DEFICIT
                       PSIF       11.67  WETTING FRONT SUCTION
                      XKSAT         .03  HYDRAULIC CONDUCTIVITY
                      RTIMP        4.48  PERCENT IMPERVIOUS AREA

 41 UI          INPUT UNITGRAPH,  39 ORDINATES,  VOLUME = 1.00
                        .0      11.1      11.1      22.8      41.0      58.5      73.9      87.0      98.5     104.2
                     106.5     103.2      97.1      82.2      70.7      59.7      50.7      42.9      36.4      31.3
                      25.5      21.8      19.0      17.0      12.3      11.8       9.3       7.6       7.6       7.4
                       2.7       2.7       2.7       2.7       2.7       2.7       2.7       2.7       2.7
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 47 KK      *        CB4  *        CNAME      4R
            *            *
            **************

 48 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 49 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 50 KK      *         4R  *        CNAME      CB4
            *            *
            **************

 51 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 52 RS          STORAGE ROUTING
                     NSTPS           2  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 53 RC          NORMAL DEPTH CHANNEL
```

```
                    ANL        .070  LEFT OVERBANK N-VALUE
                   ANCH        .050  MAIN CHANNEL N-VALUE
                    ANR        .070  RIGHT OVERBANK N-VALUE
                  RLNTH        850.  REACH LENGTH
                    SEL       .0030  ENERGY SLOPE
                  ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 55 RY      ELEVATION  1578.80   1578.09   1578.01   1578.04   1577.99   1577.75   1577.93   1578.97
 54 RX      DISTANCE       .00     41.15     68.02     89.65    116.52    160.36    199.56    379.62

                                                  ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

        STORAGE        .00       .02       .06       .14       .26       .44       .68       .93      1.21      1.50
        OUTFLOW        .00       .11       .73      2.16      4.50      8.47     15.84     25.47     37.25     51.17
      ELEVATION    1577.75   1577.81   1577.88   1577.94   1578.01   1578.07   1578.14   1578.20   1578.26   1578.33

        STORAGE       1.81      2.14      2.49      2.86      3.24      3.65      4.07      4.51      4.97      5.44
        OUTFLOW      67.24     85.47    105.89    128.55    153.47    180.69    210.27    242.85    278.20    315.99
      ELEVATION    1578.39   1578.46   1578.52   1578.58   1578.65   1578.71   1578.78   1578.84   1578.91   1578.97


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 56 KK    *        B4  *
          *            *
          **************

 57 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 58 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .04  SUBBASIN AREA

 59 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .25  STARTING LOSS
                       DTH         .13  MOISTURE DEFICIT
                      PSIF       10.03  WETTING FRONT SUCTION
                     XKSAT         .06  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 58 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                       .0       7.8      30.0      52.1      59.0      45.7      28.8      18.0      11.4       7.2
                      4.3       2.3       1.5       1.5

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 62 KK    *       CB3  *        CNAME      3R
          *            *
          **************

 63 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


 64 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 65 KK    *        3R  *        CNAME     CB3
          *            *
          **************

 66 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 67 RS          STORAGE ROUTING
                     NSTPS           5  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 68 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       2481.  REACH LENGTH
                       SEL       .0102  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 70 RY        ELEVATION   1570.00   1569.22   1568.13   1565.51   1566.37   1568.18   1569.68   1570.00
 69 RX        DISTANCE        .00    120.34    182.34    248.46    297.46    353.40    506.51    651.42

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .13       .52      1.18      2.09      3.19      4.48      5.94      7.58      9.40
          OUTFLOW        .00      1.66     10.56     31.14     68.08    124.12    198.71    293.40    409.76    549.34
        ELEVATION    1565.51   1565.75   1565.98   1566.22   1566.46   1566.69   1566.93   1567.16   1567.40   1567.64

          STORAGE      11.40     13.58     16.03     18.98     22.43     26.39     30.87     36.10     42.20     50.01
          OUTFLOW     713.62    904.10   1162.17   1465.72   1810.11   2199.58   2634.74   3121.13   3651.39   4248.56
        ELEVATION    1567.87   1568.11   1568.35   1568.58   1568.82   1569.05   1569.29   1569.53   1569.76   1570.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      199. TO     4249.
               THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
               THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 71 KK    *        B2  *
          *            *
          **************

 72 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 73 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .09  SUBBASIN AREA

 74 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .23  STARTING LOSS
                        DTH         .20  MOISTURE DEFICIT
                       PSIF        6.50  WETTING FRONT SUCTION
                      XKSAT         .23  HYDRAULIC CONDUCTIVITY
                      RTIMP        8.57  PERCENT IMPERVIOUS AREA
```

```
 73 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                     .0       20.1       76.9      132.3      148.3      111.9       70.2       43.7       27.6       16.9
                   10.8        4.9        3.8        3.8
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 77 KK      *      CB2L  *        CNAME      2R
            *            *
            **************

 78 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 79 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 80 KK      *        B3  *
            *            *
            **************

 81 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 82 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

 83 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .28  STARTING LOSS
                        DTH         .12  MOISTURE DEFICIT
                       PSIF       10.60  WETTING FRONT SUCTION
                      XKSAT         .05  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 82 UI          INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                     .0        5.8       16.5       34.4       48.2       55.0       52.6       40.5       29.2       21.1
                   15.1       10.9        7.9        5.7        4.0        2.9        1.4        1.4        1.4        1.4
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 87 KK      *       CB2  *        CNAME      2R
            *            *
            **************

 88 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS
```

```
 89 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 90 KK      *        2R  *        CNAME     CB2
            *            *
            **************

 91 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 92 RS          STORAGE ROUTING
                      NSTPS           9  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 93 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       5051.  REACH LENGTH
                        SEL       .0105  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 95 RY        ELEVATION   1535.20   1532.04   1528.79   1523.29   1524.15   1529.70   1533.38   1535.65
 94 RX        DISTANCE        .00    109.57    164.64    237.72    291.03    374.70    439.24    486.20
                                                                  ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.85      6.86     13.38     21.29     30.60     41.30     53.38     66.86     81.76
          OUTFLOW        .00     22.99    151.07    398.89    769.26   1273.74   1924.55   2733.90   3713.78   4942.55
        ELEVATION    1523.29   1523.94   1524.59   1525.24   1525.89   1526.54   1527.19   1527.84   1528.49   1529.14

          STORAGE      98.21    116.31    136.11    157.59    180.90    206.68    235.04    266.09    299.87    335.95
          OUTFLOW    6445.88   8325.18  10434.03  12782.09  15361.08  18201.53  21330.91  24765.88  28526.62  32741.51
        ELEVATION    1529.80   1530.45   1531.10   1531.75   1532.40   1533.05   1533.70   1534.35   1535.00   1535.65

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      151. TO    32742.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 96 KK      *        B1  *
            *            *
            **************

 97 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 98 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .19  SUBBASIN AREA
```

```
 99 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .15  MOISTURE DEFICIT
                       PSIF        7.22  WETTING FRONT SUCTION
                      XKSAT         .17  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 98 UI          INPUT UNITGRAPH,  26 ORDINATES,  VOLUME = 1.00
                        .0      18.7      33.5      80.2     121.0     156.6     175.6     177.4     160.3     126.0
                      97.9      76.2      58.9      45.5      35.5      28.4      19.9      16.0      12.8      10.8
                       4.6       4.6       4.6       4.6       4.6       4.6
                                                                   ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
103 KK      *       CB1  *        CNAME      1R
            *            *
            **************

104 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

105 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                   ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
106 KK      *        1R  *        CNAME     CB1
            *            *
            **************

107 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

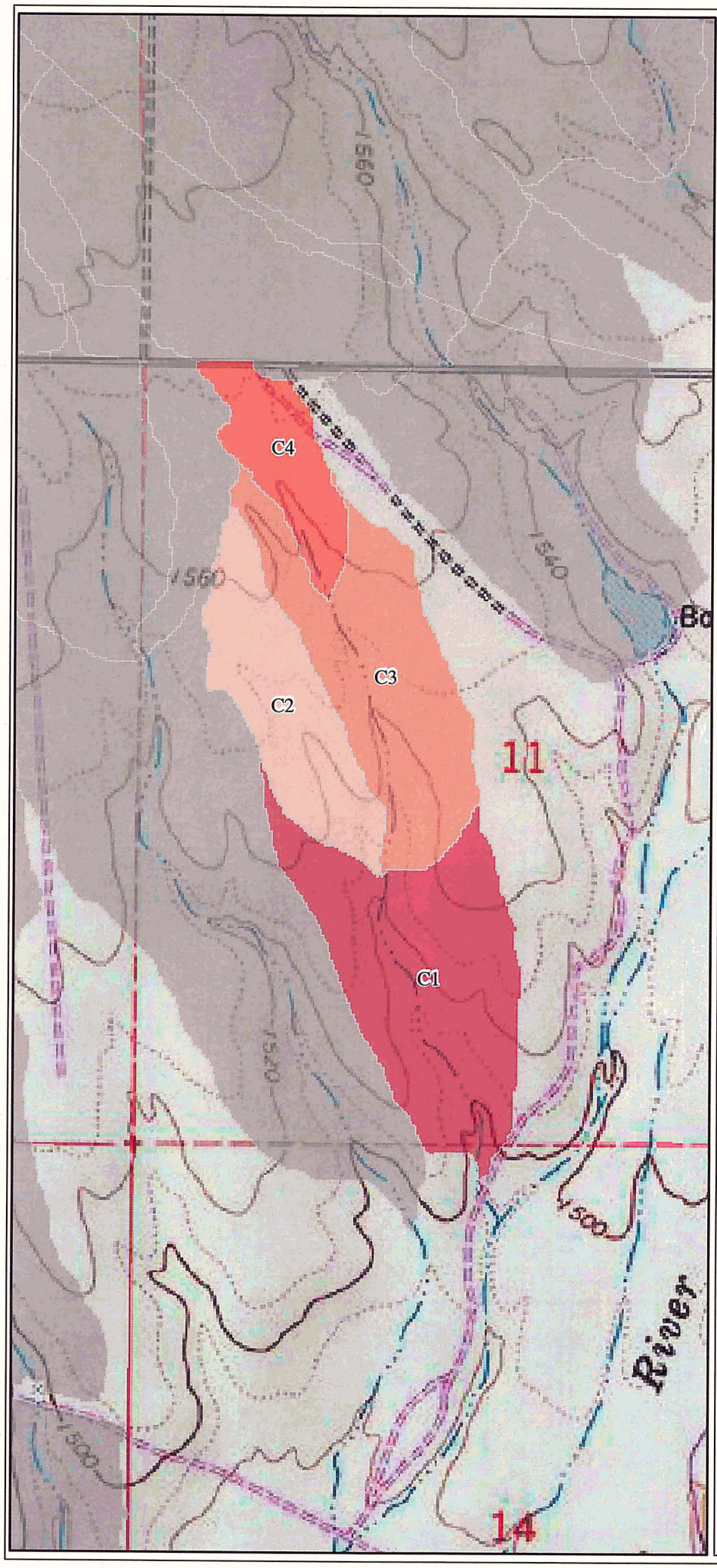
108 RN          NO ROUTING
                                                                   ***
1
                                                RUNOFF SUMMARY
                                        FLOW IN CUBIC FEET PER SECOND
                                      TIME IN HOURS,  AREA IN SQUARE MILES

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

        HYDROGRAPH AT
+                          B6         60.    4.25           7.          3.          3.        .02
        ROUTED TO
+                          5R         34.    5.00           7.          3.          3.        .02
        HYDROGRAPH AT
+                          B5        232.    4.67          49.         18.         18.        .17
        2 COMBINED AT
+                         CB4        258.    4.75          56.         20.         20.        .20
        ROUTED TO
+                          4R        249.    4.92          55.         20.         20.        .20
```

	HYDROGRAPH AT						
+		B4	88.	4.25	9.	3.	3.	.04
	2 COMBINED AT						
+		CB3	254.	4.92	64.	23.	23.	.23
	ROUTED TO						
+		3R	251.	5.08	64.	23.	23.	.23
	HYDROGRAPH AT						
+		B2	200.	4.25	18.	7.	7.	.09
	2 COMBINED AT						
+		CB2L	254.	5.08	82.	30.	30.	.32
	HYDROGRAPH AT						
+		B3	96.	4.33	12.	4.	4.	.05
	2 COMBINED AT						
+		CB2	349.	4.33	93.	34.	34.	.37
	ROUTED TO						
+		2R	331.	4.67	93.	34.	34.	.37
	HYDROGRAPH AT						
+		B1	301.	4.42	41.	15.	15.	.19
	2 COMBINED AT						
+		CB1	577.	4.58	133.	48.	48.	.56
	ROUTED TO						
+		1R	577.	4.58	133.	48.	48.	.56

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



New River West FDS
Appendix D.6.C
Basin C

LEGEND

- Project Boundary
- All Other Basins

Basin C Sub-basin IDs

- C1
- C2
- C3
- C4

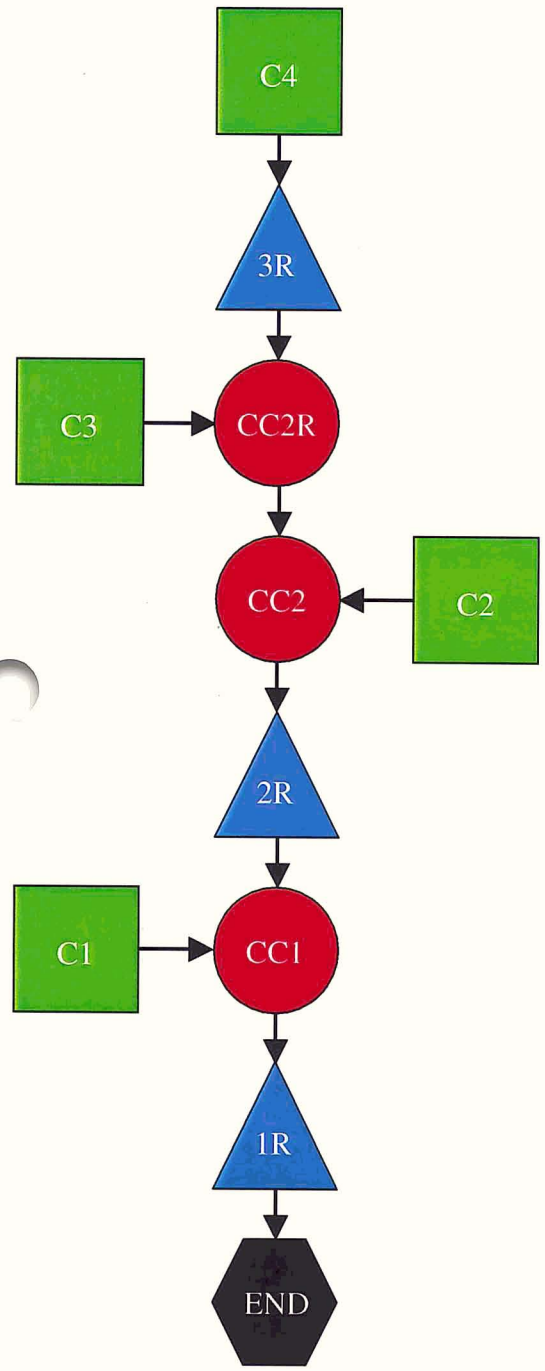
N

0 250 500 1,000
Feet

Scale: 1" = 1,000'

Horizontal Datum:	Data Sources:	Date: 06.09.04
NAD83 State Plane	USGS 7.5':	MCFCD Proj. No: FCD 2003-C057
AZ Central	Biscuit Flat	Proj. No: 23443706
Vertical Datum:	MCCFCD	PM: M.R.
NGVD 29		Checked By: M.M.
		Cartography: D.G.

P:\New_River_FDS\GIS\mxds\basins\nr_basinC.mxd



Basin C

HEC-1 Model Schematic

Sub-basin

Routing Reach

Concentration Point

End of Model

Basin C

100 – Year
6 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*************************************
 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
 *              JUN   1998           *
 *            VERSION 4.1            *
 *                                   *
 *  RUN DATE   29APR04  TIME  19:15:02 *
 *                                   *
 *************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin C - 100-Year 6-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   3.318    0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 11           PC   0.962   0.972   0.983   0.991     1.0
 12           IN      15 28APR04       0
 13           JD   3.298     0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 16           PC   0.962   0.972   0.983   0.991     1.0
 17           IN      15 28APR04       0
 18           JD   3.274     1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 20           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 21           PC  0.9572  0.9684  0.9798  0.9898     1.0
 22           IN      15 28APR04       0
 23           JD   3.185     5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 25           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 26           PC  0.9487   0.962  0.9743  0.9877     1.0

 27           KK      C4
 28           KO       0       0     0.0       1      22
 29           BA  0.0269
 30           LG    0.25   0.062  12.103   0.024     0.0
              * S_Graph
 31           UI     0.0   11.37    42.8   59.76   44.04   23.84   12.81    6.85    3.68    1.56
 32           UI    1.56     0.0

 33           KK      3R   CNAME     CC3
 34           KO       0       0     0.0       0      22
 35           RS       5    FLOW    -1.0     0.0
 36           RC    0.07    0.05    0.07 2173.53  0.0134     0.0
              * 3R
 37           RX     0.0  113.65  143.89  180.56  224.94  279.51  334.52  389.98
 38           RY  1546.9  1545.0  1545.3 1545.24 1545.82 1546.67 1547.62 1548.37

 39           KK      C3
 40           KO       0       0     0.0       1      22
 41           BA  0.0715
 42           LG    0.25    0.15   8.691     0.1     0.0
              * S_Graph
 43           UI     0.0   15.12   58.12  101.72  118.13   95.56   60.98   39.03   24.34   15.64
 44           UI    9.69    6.02    3.04    3.04    3.04
```

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

  45          KK    CC2R   CNAME      2R
  46          KO       0       0     0.0       0      22
  47          HC       2   0.098

  48          KK      C2
  49          KO       0       0     0.0       1      22
  50          BA   0.046
  51          LG    0.25   0.205   6.452   0.241     0.0
              * S_Graph
  52          UI     0.0   12.49   48.08    79.5   81.28   54.09   32.75   19.67   11.69    7.01
  53          UI    3.82    2.19    2.19     0.0

  54          KK     CC2   CNAME      2R
  55          KO       0       0     0.0       0      22
  56          HC       2   0.145

  57          KK      2R   CNAME     CC2
  58          KO       0       0     0.0       0      22
  59          RS       5    FLOW    -1.0     0.0
  60          RC    0.07    0.05    0.07 2446.21   0.011     0.0
              * 2R
  61          RX     0.0  117.89   149.0   186.8  246.34  299.38  390.65  433.69
  62          RY  1520.5 1512.24 1512.14  1511.3 1511.85 1512.05  1515.7 1517.72

  63          KK      C1
  64          KO       0       0     0.0       1      22
  65          BA  0.0863
  66          LG    0.25   0.175   6.754   0.212     0.0
              * S_Graph
  67          UI     0.0   16.56   64.09  114.65  136.92  117.97   77.79   50.53   32.36   21.21
  68          UI   13.27     9.7    3.52    3.52    3.52     0.0

  69          KK     CC1   CNAME      1R
  70          KO       0       0     0.0       0      22
  71          HC       2   0.231

  72          KK      1R   CNAME     CC1
  73          KO       0       0     0.0       0      22
  74          RN      1R
  75          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   27          C4
                V
                V
   33          3R
                .
                .
   39           .          C3
                .           .
                .           .
   45        CC2R............
                .
                .
   48           .          C2
                .           .
                .           .
   54         CC2............
                V
                V
   57          2R
                .
                .
   63           .          C1
                .           .
                .           .
   69         CC1............
                V
                V
   72          1R

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   29APR04  TIME  19:15:02  *
 *                                      *
 ****************************************

                                        ****************************************
                                        *                                      *
                                        *    U.S. ARMY CORPS OF ENGINEERS      *
                                        *    HYDROLOGIC ENGINEERING CENTER     *
                                        *          609 SECOND STREET           *
                                        *       DAVIS, CALIFORNIA 95616        *
                                        *          (916) 756-1104              *
                                        *                                      *
                                        ****************************************
```

```
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin C - 100-Year 6-Hour Storm Event
                    April 2004

  6 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

  7 IN        TIME DATA FOR INPUT TIME SERIES
                     JXMIN        15  TIME INTERVAL IN MINUTES
                   JXDATE   28APR 4  STARTING DATE
                   JXTIME         0  STARTING TIME

 12 IN        TIME DATA FOR INPUT TIME SERIES
                     JXMIN        15  TIME INTERVAL IN MINUTES
                   JXDATE   28APR 4  STARTING DATE
                   JXTIME         0  STARTING TIME

 17 IN        TIME DATA FOR INPUT TIME SERIES
                     JXMIN        15  TIME INTERVAL IN MINUTES
                   JXDATE   28APR 4  STARTING DATE
                   JXTIME         0  STARTING TIME

 22 IN        TIME DATA FOR INPUT TIME SERIES
                     JXMIN        15  TIME INTERVAL IN MINUTES
                   JXDATE   28APR 4  STARTING DATE
                   JXTIME         0  STARTING TIME

    IT        HYDROGRAPH TIME DATA
                      NMIN         5  MINUTES IN COMPUTATION INTERVAL
                     IDATE   28APR 4  STARTING DATE
                     ITIME      0000  STARTING TIME
                        NQ       200  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE   28APR 4  ENDING DATE
                   NDTIME      1635  ENDING TIME
                    ICENT        19  CENTURY MARK

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   16.58 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

  8 JD        INDEX STORM NO. 1
                     STRM      3.32  PRECIPITATION DEPTH
                     TRDA       .01  TRANSPOSITION DRAINAGE AREA

  9 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

 13 JD        INDEX STORM NO. 2
                     STRM      3.30  PRECIPITATION DEPTH
                     TRDA       .50  TRANSPOSITION DRAINAGE AREA

 14 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

 18 JD        INDEX STORM NO. 3
                     STRM      3.27  PRECIPITATION DEPTH
                     TRDA      1.00  TRANSPOSITION DRAINAGE AREA

 19 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

 23 JD        INDEX STORM NO. 4
                     STRM      3.18  PRECIPITATION DEPTH
                     TRDA      5.00  TRANSPOSITION DRAINAGE AREA
```

```
 24 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                  .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 27 KK    *        C4  *
          *            *
          **************

 28 KO        OUTPUT CONTROL VARIABLES
                IPRNT           4  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE
                IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                 IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 29 BA        SUBBASIN CHARACTERISTICS
                TAREA         .03  SUBBASIN AREA

 30 LG        GREEN AND AMPT LOSS RATE
                STRTL         .25  STARTING LOSS
                  DTH         .06  MOISTURE DEFICIT
                 PSIF       12.10  WETTING FRONT SUCTION
                XKSAT         .02  HYDRAULIC CONDUCTIVITY
                RTIMP         .00  PERCENT IMPERVIOUS AREA

 29 UI        INPUT UNITGRAPH,  11 ORDINATES,  VOLUME = 1.00
                  .0      11.4      42.8      59.8      44.0      23.8      12.8       6.8       3.7       1.6
                 1.6
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 33 KK    *        3R  *        CNAME     CC3
          *            *
          **************

 34 KO        OUTPUT CONTROL VARIABLES
                IPRNT           4  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE
                IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                 IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 35 RS        STORAGE ROUTING
               NSTPS           5  NUMBER OF SUBREACHES
                ITYP        FLOW  TYPE OF INITIAL CONDITION
              RSVRIC       -1.00  INITIAL CONDITION
                   X         .00 WORKING R AND D COEFFICIENT

 36 RC        NORMAL DEPTH CHANNEL
                 ANL        .070  LEFT OVERBANK N-VALUE
                ANCH        .050  MAIN CHANNEL N-VALUE
                 ANR        .070  RIGHT OVERBANK N-VALUE
               RLNTH       2174.  REACH LENGTH
                 SEL       .0134  ENERGY SLOPE
               ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 38 RY        ELEVATION   1546.90   1545.00   1545.30   1545.24   1545.82   1546.67   1547.62   1548.37
 37 RX        DISTANCE        .00    113.65    143.89    180.56    224.94    279.51    334.52    389.98
                                                                  ***
```

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.13	.68	1.64	2.82	4.21	5.80	7.59	9.56	11.74
OUTFLOW	.00	1.24	10.50	39.30	86.66	154.21	243.55	355.32	490.96	651.91
ELEVATION	1545.00	1545.18	1545.35	1545.53	1545.71	1545.89	1546.06	1546.24	1546.42	1546.60
STORAGE	14.11	16.65	19.32	22.07	24.92	27.85	30.90	34.06	37.34	40.73
OUTFLOW	853.11	1098.68	1388.91	1708.79	2058.20	2436.78	2844.22	3281.99	3750.39	4249.78
ELEVATION	1546.77	1546.95	1547.13	1547.31	1547.48	1547.66	1547.84	1548.02	1548.19	1548.37

```
*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      244. TO     4250.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 39 KK    *        C3  *
          *            *
          **************

 40 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 41 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .07  SUBBASIN AREA

 42 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .15  MOISTURE DEFICIT
                       PSIF        8.69  WETTING FRONT SUCTION
                      XKSAT         .10  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 41 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                        .0      15.1      58.1     101.7     118.1      95.6      61.0      39.0      24.3      15.6
                       9.7       6.0       3.0       3.0       3.0
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 45 KK    *      CC2R  *        CNAME      2R
          *            *
          **************

 46 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 47 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 48 KK    *        C2  *
          *            *
          **************

 49 KO          OUTPUT CONTROL VARIABLES
```

```
                IPRNT          4  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                 IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS


          SUBBASIN RUNOFF DATA

 50 BA      SUBBASIN CHARACTERISTICS
                TAREA        .05  SUBBASIN AREA

 51 LG      GREEN AND AMPT LOSS RATE
                STRTL        .25  STARTING LOSS
                  DTH        .20  MOISTURE DEFICIT
                 PSIF       6.45  WETTING FRONT SUCTION
                XKSAT        .24  HYDRAULIC CONDUCTIVITY
                RTIMP        .00  PERCENT IMPERVIOUS AREA

 50 UI      INPUT UNITGRAPH,  13 ORDINATES,  VOLUME = 1.00
                 .0      12.5      48.1      79.5      81.3      54.1      32.8      19.7      11.7       7.0
                3.8       2.2       2.2
                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 54 KK    *       CC2  *        CNAME      2R
          *            *
          **************

 55 KO      OUTPUT CONTROL VARIABLES
                IPRNT          4  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS


 56 HC      HYDROGRAPH COMBINATION
                ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 57 KK    *        2R  *        CNAME      CC2
          *            *
          **************

 58 KO      OUTPUT CONTROL VARIABLES
                IPRNT          4  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                 IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS


          HYDROGRAPH ROUTING DATA

 59 RS      STORAGE ROUTING
               NSTPS          5  NUMBER OF SUBREACHES
                ITYP       FLOW  TYPE OF INITIAL CONDITION
              RSVRIC      -1.00  INITIAL CONDITION
                   X        .00 WORKING R AND D COEFFICIENT

 60 RC      NORMAL DEPTH CHANNEL
                 ANL       .070  LEFT OVERBANK N-VALUE
                ANCH       .050  MAIN CHANNEL N-VALUE
                 ANR       .070  RIGHT OVERBANK N-VALUE
               RLNTH      2446.  REACH LENGTH
                 SEL      .0110  ENERGY SLOPE
               ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                    --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
```

```
 62 RY        ELEVATION   1520.50   1512.24   1512.14   1511.30   1511.85   1512.05   1515.70   1517.72
 61 RX        DISTANCE        .00    117.89    149.00    186.80    246.34    299.38    390.65    433.69

                                                                  ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.01      4.60      9.96     15.83     22.22     29.12     36.54     44.48     52.94
          OUTFLOW        .00     21.82    161.79    511.39   1025.66   1693.93   2512.65   3481.14   4600.21   5871.50
        ELEVATION    1511.30   1511.78   1512.27   1512.75   1513.24   1513.72   1514.21   1514.69   1515.17   1515.66

          STORAGE      61.90     71.32     81.21     91.57    102.32    113.27    124.41    135.73    147.24    158.94
          OUTFLOW    7303.17   8890.26  10634.15  12537.07  14669.93  16987.41  19463.43  22096.15  24884.14  27826.48
        ELEVATION    1516.14   1516.63   1517.11   1517.60   1518.08   1518.56   1519.05   1519.53   1520.02   1520.50

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      162. TO    27826.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 63 KK      *        C1  *
            *            *
            **************

 64 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 65 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .09  SUBBASIN AREA

 66 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .17  MOISTURE DEFICIT
                       PSIF        6.75  WETTING FRONT SUCTION
                      XKSAT         .21  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 65 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                        .0      16.6      64.1     114.7     136.9     118.0      77.8      50.5      32.4      21.2
                      13.3       9.7       3.5       3.5       3.5

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 69 KK      *       CC1  *        CNAME      1R
            *            *
            **************

 70 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 71 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 72 KK      *        1R  *        CNAME     CC1
```

```
*            *
**************

73 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          4  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

74 RN          NO ROUTING

                                                   ***

1
                                          RUNOFF SUMMARY
                                     FLOW IN CUBIC FEET PER SECOND
                                  TIME IN HOURS,  AREA IN SQUARE MILES

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

        HYDROGRAPH AT
+                          C4     81.    4.17         8.          3.          3.       .03
        ROUTED TO
+                          3R     63.    4.50         8.          3.          3.       .03
        HYDROGRAPH AT
+                          C3    173.    4.25        16.          6.          6.       .07
        2 COMBINED AT
+                         CC2R   205.    4.25        24.          9.          9.       .10
        HYDROGRAPH AT
+                          C2    106.    4.17         9.          3.          3.       .05
        2 COMBINED AT
+                         CC2    310.    4.25        33.         12.         12.       .14
        ROUTED TO
+                          2R    286.    4.42        33.         12.         12.       .14
        HYDROGRAPH AT
+                          C1    192.    4.25        17.          6.          6.       .09
        2 COMBINED AT
+                         CC1    419.    4.42        50.         18.         18.       .23
        ROUTED TO
+                          1R    419.    4.42        50.         18.         18.       .23

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

Basin C

100 – Year
24 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*            JUN   1998             *
*          VERSION 4.1              *
*                                   *
* RUN DATE   29APR04  TIME  19:19:30 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 756-1104           *
*                                   *
*************************************
```

```
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  HEC-1 Analysis using WMS
    2           ID  New River West Tributaries FDS - FCD 2003 C057
    3           ID  Basin C - 100-Year 24-Hour Storm Event
    4           ID  April 2004
                *DIAGRAM
    5           IT       5 28APR04       0     200
    6           IO       4
    7           IN      15 28APR04       0
    8           JD   4.178    0.01
                * 24-hour distribution
    9           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
   10           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
   11           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
   12           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
   13           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
   14           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
   15           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
   16           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
   17           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
   18           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
   19           IN      15 28APR04       0
   20           JD   3.969    10.0
                * 24-hour distribution
   21           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
   22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
   23           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
   24           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
   25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
   26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
   27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
   28           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
   29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
   30           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

   31           KK      C4
   32           KO       0       0     0.0       1      22
   33           BA  0.0269
   34           LG    0.25   0.062  12.103   0.024     0.0
                * S_Graph
   35           UI     0.0   11.37    42.8   59.76   44.04   23.84   12.81    6.85    3.68    1.56
   36           UI    1.56     0.0

   37           KK      3R   CNAME     CC3
   38           KO       0       0     0.0       0      22
   39           RS       5    FLOW    -1.0     0.0
   40           RC    0.07    0.05    0.07 2173.53  0.0134     0.0
                * 3R
   41           RX     0.0  113.65  143.89  180.56  224.94  279.51  334.52  389.98
   42           RY  1546.9  1545.0  1545.3 1545.24 1545.82 1546.67 1547.62 1548.37
1                                    HEC-1 INPUT                                                    PAGE  2

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

   43           KK      C3
   44           KO       0       0     0.0       1      22
   45           BA  0.0715
```

```
46          LG    0.25    0.15   8.691     0.1     0.0
            * S_Graph
47          UI     0.0   15.12   58.12  101.72  118.13   95.56   60.98   39.03   24.34   15.64
48          UI    9.69    6.02    3.04    3.04    3.04

49          KK    CC2R   CNAME      2R
50          KO       0       0     0.0       0      22
51          HC       2   0.098

52          KK      C2
53          KO       0       0     0.0       1      22
54          BA   0.046
55          LG    0.25   0.205   6.452   0.241     0.0
            * S_Graph
56          UI     0.0   12.49   48.08    79.5   81.28   54.09   32.75   19.67   11.69    7.01
57          UI    3.82    2.19    2.19     0.0

58          KK     CC2   CNAME      2R
59          KO       0       0     0.0       0      22
60          HC       2   0.145

61          KK      2R   CNAME     CC2
62          KO       0       0     0.0       0      22
63          RS       5    FLOW    -1.0     0.0
64          RC    0.07    0.05    0.07 2446.21   0.011     0.0
            * 2R
65          RX     0.0  117.89   149.0   186.8  246.34  299.38  390.65  433.69
66          RY  1520.5 1512.24 1512.14  1511.3 1511.85 1512.05  1515.7 1517.72

67          KK      C1
68          KO       0       0     0.0       1      22
69          BA  0.0863
70          LG    0.25   0.175   6.754   0.212     0.0
            * S_Graph
71          UI     0.0   16.56   64.09  114.65  136.92  117.97   77.79   50.53   32.36   21.21
72          UI   13.27     9.7    3.52    3.52    3.52     0.0

73          KK     CC1   CNAME      1R
74          KO       0       0     0.0       0      22
75          HC       2   0.231

76          KK      1R   CNAME     CC1
77          KO       0       0     0.0       0      22
78          RN      1R
79          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   31          C4
                V
                V
   37          3R
                .
                .
   43           .          C3
                .           .
                .           .
   49        CC2R............
                .
                .
   52           .          C2
                .           .
                .           .
   58         CC2............
                V
                V
   61          2R
                .
                .
   67           .          C1
                .           .
                .           .
   73         CC1............
                V
                V
   76          1R
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   29APR04  TIME  19:19:30  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*   U.S. ARMY CORPS OF ENGINEERS       *
*   HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
                    HEC-1 Analysis using WMS
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin C - 100-Year 24-Hour Storm Event
                    April 2004

 6 IO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

 7 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          15  TIME INTERVAL IN MINUTES
                    JXDATE     28APR 4  STARTING DATE
                    JXTIME           0  STARTING TIME

19 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          15  TIME INTERVAL IN MINUTES
                    JXDATE     28APR 4  STARTING DATE
                    JXTIME           0  STARTING TIME

   IT          HYDROGRAPH TIME DATA
                      NMIN           5  MINUTES IN COMPUTATION INTERVAL
                     IDATE     28APR 4  STARTING DATE
                     ITIME        0000  STARTING TIME
                        NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE     28APR 4  ENDING DATE
                    NDTIME        1635  ENDING TIME
                     ICENT          19  CENTURY MARK

               COMPUTATION INTERVAL      .08 HOURS
                    TOTAL TIME BASE    16.58 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

 8 JD          INDEX STORM NO. 1
                      STRM       4.18  PRECIPITATION DEPTH
                      TRDA        .01  TRANSPOSITION DRAINAGE AREA

 9 PI            PRECIPITATION PATTERN
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .01     .00     .01
                  .01     .01     .01     .01     .01     .01     .01     .01     .03     .03
                  .03     .09     .09     .09     .01     .01     .01     .01     .01     .01
                  .01     .01     .01     .01     .01     .01     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00

20 JD          INDEX STORM NO. 2
                      STRM       3.97  PRECIPITATION DEPTH
                      TRDA      10.00  TRANSPOSITION DRAINAGE AREA

21 PI            PRECIPITATION PATTERN
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .01     .00     .01
                  .01     .01     .01     .01     .01     .01     .01     .01     .03     .03
                  .03     .09     .09     .09     .01     .01     .01     .01     .01     .01
                  .01     .01     .01     .01     .01     .01     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00     .00
                  .00     .00     .00     .00     .00     .00     .00     .00     .00
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 31 KK    *        C4  *
          *            *
          **************

 32 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 33 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .03  SUBBASIN AREA

 34 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .06  MOISTURE DEFICIT
                       PSIF       12.10  WETTING FRONT SUCTION
                      XKSAT         .02  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 33 UI          INPUT UNITGRAPH,  11 ORDINATES,  VOLUME = 1.00
                       .0      11.4      42.8      59.8      44.0      23.8      12.8       6.8       3.7       1.6
                      1.6
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 37 KK    *        3R  *        CNAME     CC3
          *            *
          **************

 38 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 39 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 40 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2174.  REACH LENGTH
                        SEL       .0134  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 42 RY        ELEVATION   1546.90   1545.00   1545.30   1545.24   1545.82   1546.67   1547.62   1548.37
 41 RX        DISTANCE        .00    113.65    143.89    180.56    224.94    279.51    334.52    389.98
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .13       .68      1.64      2.82      4.21      5.80      7.59      9.56     11.74
          OUTFLOW        .00      1.24     10.50     39.30     86.66    154.21    243.55    355.32    490.96    651.91
        ELEVATION    1545.00   1545.18   1545.35   1545.53   1545.71   1545.89   1546.06   1546.24   1546.42   1546.60

          STORAGE      14.11     16.65     19.32     22.07     24.92     27.85     30.90     34.06     37.34     40.73
          OUTFLOW     853.11   1098.68   1388.91   1708.79   2058.20   2436.78   2844.22   3281.99   3750.39   4249.78
        ELEVATION    1546.77   1546.95   1547.13   1547.31   1547.48   1547.66   1547.84   1548.02   1548.19   1548.37
```

```
*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      244. TO     4250.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 43 KK    *        C3  *
          *            *
          **************

 44 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 45 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .07  SUBBASIN AREA

 46 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .15  MOISTURE DEFICIT
                       PSIF        8.69  WETTING FRONT SUCTION
                      XKSAT         .10  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 45 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                       .0      15.1      58.1     101.7     118.1      95.6      61.0      39.0      24.3      15.6
                      9.7       6.0       3.0       3.0       3.0
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 49 KK    *      CC2R  *        CNAME      2R
          *            *
          **************

 50 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 51 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 52 KK    *        C2  *
          *            *
          **************

 53 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA
```

```
 54 BA          SUBBASIN CHARACTERISTICS
                      TAREA          .05  SUBBASIN AREA

 55 LG          GREEN AND AMPT LOSS RATE
                      STRTL          .25  STARTING LOSS
                        DTH          .20  MOISTURE DEFICIT
                       PSIF         6.45  WETTING FRONT SUCTION
                      XKSAT          .24  HYDRAULIC CONDUCTIVITY
                      RTIMP          .00  PERCENT IMPERVIOUS AREA

 54 UI          INPUT UNITGRAPH,  13 ORDINATES,  VOLUME = 1.00
                       .0      12.5      48.1      79.5      81.3      54.1      32.8      19.7      11.7       7.0
                      3.8       2.2       2.2
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 58 KK    *      CC2   *        CNAME      2R
          *            *
          **************

 59 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 60 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 61 KK    *       2R   *        CNAME     CC2
          *            *
          **************

 62 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 63 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 64 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2446.  REACH LENGTH
                        SEL       .0110  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 66 RY        ELEVATION   1520.50   1512.24   1512.14   1511.30   1511.85   1512.05   1515.70   1517.72
 65 RX        DISTANCE        .00    117.89    149.00    186.80    246.34    299.38    390.65    433.69
                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.01      4.60      9.96     15.83     22.22     29.12     36.54     44.48     52.94
          OUTFLOW        .00     21.82    161.79    511.39   1025.66   1693.93   2512.65   3481.14   4600.21   5871.50
        ELEVATION    1511.30   1511.78   1512.27   1512.75   1513.24   1513.72   1514.21   1514.69   1515.17   1515.66

          STORAGE      61.90     71.32     81.21     91.57    102.32    113.27    124.41    135.73    147.24    158.94
```

```
          OUTFLOW    7303.17   8890.26  10634.15  12537.07  14669.93  16987.41  19463.43  22096.15  24884.14  27826.48
        ELEVATION    1516.14   1516.63   1517.11   1517.60   1518.08   1518.56   1519.05   1519.53   1520.02   1520.50

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      162. TO    27826.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 67 KK      *        C1  *
            *            *
            **************

 68 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 69 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .09  SUBBASIN AREA

 70 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .17  MOISTURE DEFICIT
                       PSIF        6.75  WETTING FRONT SUCTION
                      XKSAT         .21  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 69 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                        .0      16.6      64.1     114.7     136.9     118.0      77.8      50.5      32.4      21.2
                      13.3       9.7       3.5       3.5       3.5
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 73 KK      *       CC1  *        CNAME      1R
            *            *
            **************

 74 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 75 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 76 KK      *         1R *        CNAME     CC1
            *            *
            **************

 77 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS
```

HYDROGRAPH ROUTING DATA

78 RN NO ROUTING

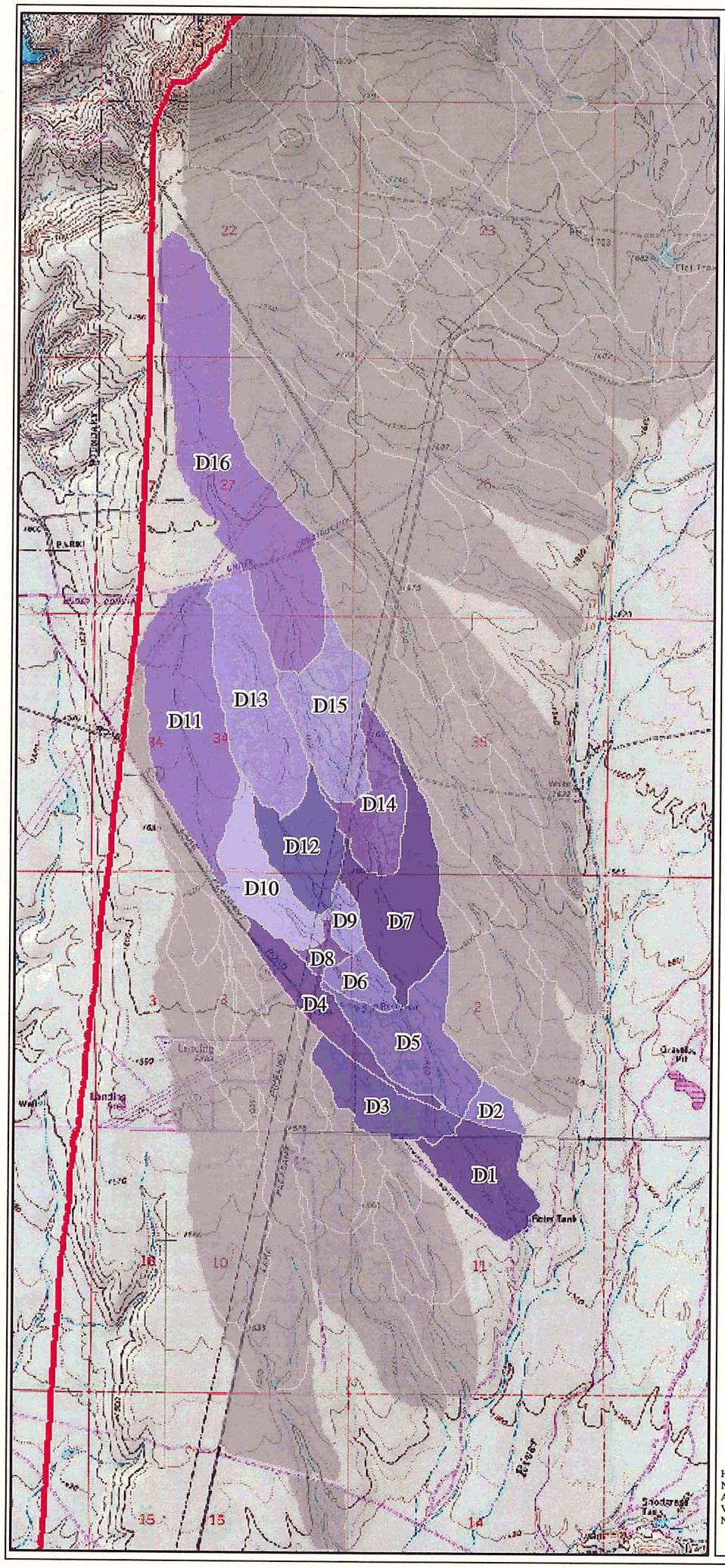
***

1

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 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	C4	70.	12.17	9.	3.	3.	.03		
+	ROUTED TO	3R	53.	12.50	8.	3.	3.	.03		
+	HYDROGRAPH AT	C3	149.	12.25	16.	6.	6.	.07		
+	2 COMBINED AT	CC2R	175.	12.25	24.	9.	9.	.10		
+	HYDROGRAPH AT	C2	93.	12.17	8.	3.	3.	.05		
+	2 COMBINED AT	CC2	265.	12.25	32.	12.	12.	.14		
+	ROUTED TO	2R	242.	12.42	32.	12.	12.	.14		
+	HYDROGRAPH AT	C1	166.	12.25	16.	6.	6.	.09		
+	2 COMBINED AT	CC1	355.	12.42	47.	17.	17.	.23		
+	ROUTED TO	1R	355.	12.42	47.	17.	17.	.23		

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



New River West FDS
Appendix D.6.D
Basin D

LEGEND

- Project Boundary
- All Other Basins

Basin D Sub-basin IDs

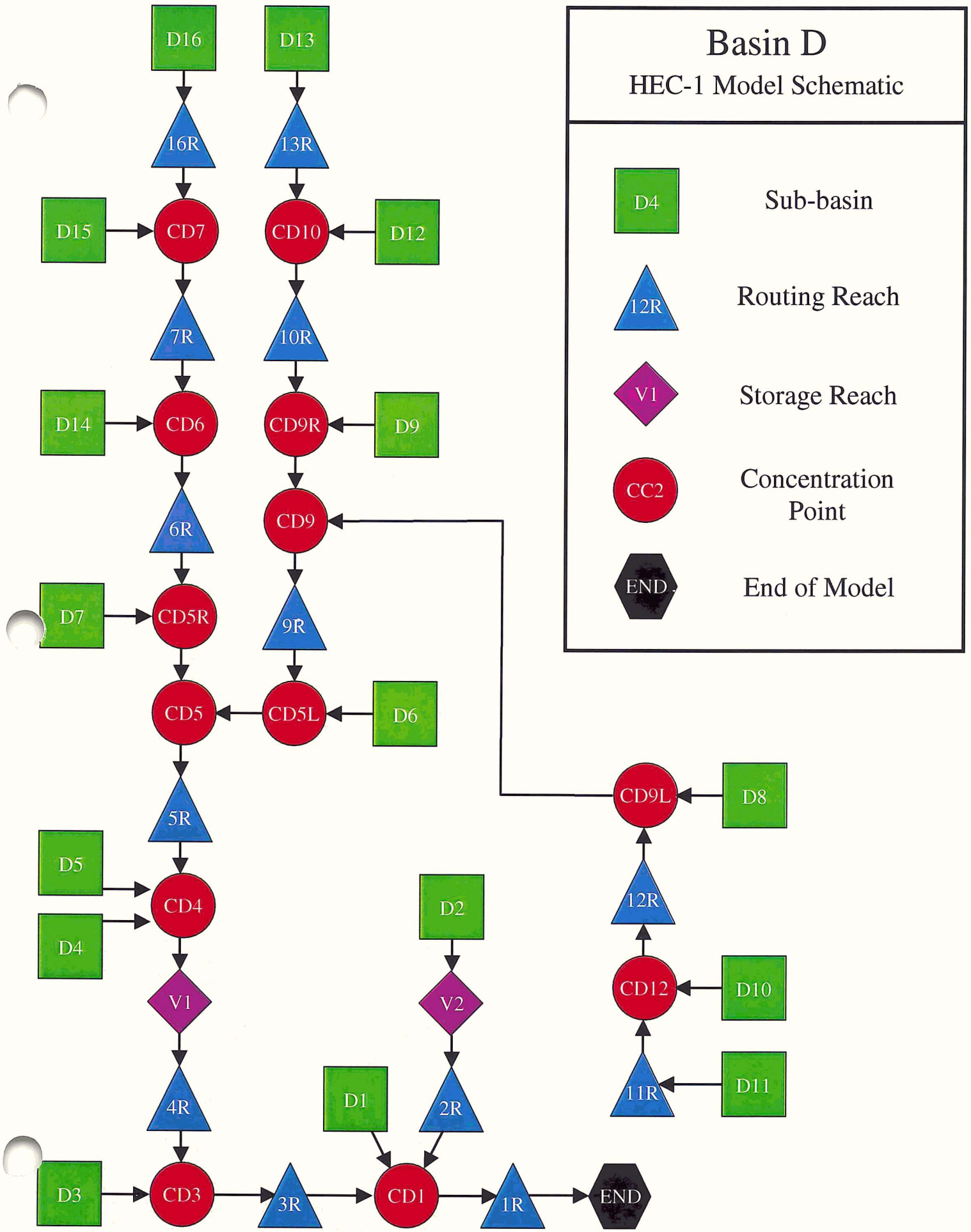
- D1
- D10
- D11
- D12
- D13
- D14
- D15
- D16
- D2
- D3
- D4
- D5
- D6
- D7
- D8
- D9

N

0 750 1,500 3,000
Feet
Scale: 1" = 3,000'

Horizontal Datum:	Data Sources:	Date: 06.09.04
NAD83 State Plane	USGS 7.5':	MCFCD Proj. No: FCD 2003-C057
AZ Central	Biscuit Flat	Proj. No: 23443706
Vertical Datum:	Baldy Mtn.	PM: M.R.
NGVD 29	MCCFCD	Checked By: M.M.
		Cartography: D.G.

P:\New_River_FDS\GIS\mxds\basins\nr_basinD.mxd


Basin D
HEC-1 Model Schematic
D4
Sub-basin
12R
Routing Reach
V1
Storage Reach
CC2
Concentration Point
END
End of Model
D16
D13
16R
13R
D15
CD7
CD10
D12
7R
10R
D14
CD6
CD9R
D9
6R
CD9
D7
CD5R
9R
CD5
CD5L
D6
CD9L
D8
5R
D5
CD4
D4
D2
12R
V1
V2
CD12
D10
4R
D1
2R
11R
D11
D3
CD3
3R
CD1
1R
END

Basin D

100 – Year
6 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   13JUN04  TIME  20:20:56  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin D - 100-Year 6-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   3.337    0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 11           PC   0.962   0.972   0.983   0.991     1.0
 12           IN      15 28APR04       0
 13           JD   3.317     0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 16           PC   0.962   0.972   0.983   0.991     1.0
 17           IN      15 28APR04       0
 18           JD   3.294     1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 20           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 21           PC  0.9572  0.9684  0.9798  0.9898     1.0
 22           IN      15 28APR04       0
 23           JD   3.203     5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 25           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 26           PC  0.9487   0.962  0.9743  0.9877     1.0
 27           IN      15 28APR04       0
 28           JD   3.137    10.0
              * 6-hour distribution, pattern 2.7
 29           PC     0.0  0.0134  0.0189  0.0287  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
 30           PC  0.1223  0.1382  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
 31           PC  0.9471  0.9608  0.9735  0.9873     1.0

 32           KK      D2
 33           KO       0       0     0.0       1      22
 34           BA   0.028
 35           LG    0.25    0.21     6.4   0.246     0.0
              * S_Graph
 36           UI     0.0   50.47  106.52   41.84    13.0     3.5     0.0

 37           KK      V2
 38           KM    24" CMP Under State Route 74
              * RESERVOIR STORAGE
 39           KO       0       0     0.0       0      22
 40           RS       1    STOR     0.0     0.0
              * Area Curve D2
 41           SA     0.0    0.13     0.5    1.06    1.96
              * Elevation Curve D2
 42           SE  1556.0  1558.0  1560.0  1562.0  1564.0
              * Discharge Curve D2
```

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

  43          SQ      0.0    11.6    22.7    25.7    28.5

  44          KK            2R   CNAME     CD2
  45          KO        0       0     0.0       0      22
  46          RS        6    FLOW    -1.0     0.0
  47          RC     0.07    0.05    0.07 2887.07  0.0115     0.0
              * 2R
  48          RX      0.0  106.98  133.23  151.11  173.96  204.04  245.67  296.24
  49          RY   1554.6 1551.28  1550.6  1550.0 1549.79 1551.27 1552.58 1553.92

  50          KK      D16
  51          KO        0       0     0.0       1      22
  52          BA   0.4404
  53          LG     0.31   0.247   8.276   0.088   4.265
              * S_Graph
  54          UI      0.0   28.88   28.88   63.45  112.62  157.37   196.5  235.32  258.13  275.94
  55          UI    276.8  263.13  238.83  201.93  168.97  143.61  121.25  103.07   85.37   72.15
  56          UI     60.3   52.78   44.29   35.75   30.61   26.32   19.77   19.77   19.77    7.72
  57          UI     7.03    7.03    7.03    7.03    7.03    7.03    7.03    7.03     0.0

  58          KK      16R   CNAME     CD8
  59          KO        0       0     0.0       0      22
  60          RS        6    FLOW    -1.0     0.0
  61          RC     0.07    0.05    0.07 3196.87  0.0083     0.0
              * 16R
  62          RX      0.0   97.17  139.71  218.92  279.08  370.79  430.96  513.83
  63          RY   1652.9 1650.46 1648.81 1644.26 1643.03 1645.52 1647.01 1649.23

  64          KK      D15
  65          KO        0       0     0.0       1      22
  66          BA   0.1545
  67          LG    0.253   0.215     6.4   0.243     0.0
              * S_Graph
  68          UI      0.0   20.18   61.01  123.14  171.82  192.79  176.38  130.65   93.54   66.68
  69          UI    46.97   34.22   23.64    16.5   13.81     5.7    4.91    4.91    4.91     0.0

  70          KK      CD7   CNAME      7R
  71          KO        0       0     0.0       0      22
  72          HC        2   0.595

  73          KK       7R   CNAME     CD7
  74          KO        0       0     0.0       0      22
  75          RS        4    FLOW    -1.0     0.0
  76          RC     0.07    0.05    0.07 1674.69  0.0118     0.0
              * 7R
  77          RX      0.0   89.54  134.31  164.73  203.64   243.0  294.86  334.22
  78          RY   1620.2 1615.38 1612.18 1610.32 1610.17 1611.02 1613.33 1615.56

  79          KK      D14
  80          KO        0       0     0.0       1      22
  81          BA   0.1051
  82          LG    0.336   0.356     6.4   0.165     0.0
              * S_Graph
  83          UI      0.0   17.94   70.87  128.12  158.59  145.79  100.59   66.61   43.76   28.97
  84          UI    19.06   11.92    7.61     4.1     4.1     4.1     0.0
```



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

  85          KK      CD6   CNAME      6R
  86          KO        0       0     0.0       0      22
  87          HC        2     0.7

  88          KK       6R   CNAME     CD6
  89          KO        0       0     0.0       0      22
  90          RS        6    FLOW    -1.0     0.0
  91          RC     0.07    0.05    0.07 3081.63   0.011     0.0
              * 6R
  92          RX      0.0   98.25  141.25  183.25  239.25  288.25  372.25  435.64
  93          RY   1598.1 1592.96 1590.67  1587.8 1586.67 1587.85 1591.63 1595.16

  94          KK       D7
  95          KO        0       0     0.0       1      22
  96          BA    0.183
  97          LG    0.332    0.35     6.4   0.168     0.0
              * S_Graph
  98          UI      0.0   20.24    45.3  101.27  149.02  182.63  193.44  177.45  137.71  103.63
  99          UI    78.47   58.58   42.46   33.56   24.03   18.34   13.85   10.61    4.93    4.93
 100          UI     4.93    4.93    4.93     0.0

 101          KK     CD5R   CNAME      4R
 102          KO        0       0     0.0       0      22
 103          HC        2   0.883

 104          KK      D13
 105          KO        0       0     0.0       1      22
 106          BA   0.2054
 107          LG    0.251   0.151   8.516   0.108     0.0
              * S_Graph
 108          UI      0.0   21.75   44.31   103.7  152.96  190.67  208.48  198.22  163.49  122.92
 109          UI    94.08   71.39   53.77   41.24   31.89   23.06   16.83   14.89    8.89    5.29
 110          UI     5.29    5.29    5.29    5.29     0.0
```

```
 111          KK     13R   CNAME    CD11
 112          KO       0       0     0.0       0      22
 113          RS       5    FLOW    -1.0     0.0
 114          RC    0.07    0.05    0.07 2426.61  0.0099     0.0
              * 13R
 115          RX     0.0  169.81  274.12  350.15  420.86  520.26  596.29  646.83
 116          RY  1620.0 1616.54 1615.21 1614.78 1614.92 1618.02 1619.81 1620.13

 117          KK     D12
 118          KO       0       0     0.0       1      22
 119          BA  0.1128
 120          LG    0.25    0.21     6.4   0.246     0.0
              * S_Graph
 121          UI     0.0   20.89   81.32  145.86   176.6  154.77  104.05   67.87   43.41    29.2
 122          UI   18.07   12.78    5.56    4.54    4.54     0.0
1                                          HEC-1 INPUT                                                    PAGE  4

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


 123          KK    CD10   CNAME     10R
 124          KO       0       0     0.0       0      22
 125          HC       2   0.318

 126          KK     10R   CNAME    CD10
 127          KO       0       0     0.0       0      22
 128          RS       3    FLOW    -1.0     0.0
 129          RC    0.07    0.05    0.07  1159.0  0.0132     0.0
              * 10R
 130          RX     0.0    71.0    98.0   130.0   173.0  227.23  259.62  292.62
 131          RY  1595.7 1593.12 1591.43 1590.98 1590.27 1593.57 1595.63 1597.25

 132          KK      D9
 133          KO       0       0     0.0       1      22
 134          BA  0.0263
 135          LG   0.268   0.241     6.4   0.228     0.0
              * S_Graph
 136          UI     0.0   20.11   67.13   63.28   30.02   13.39    6.31    1.97    1.97

 137          KK    CD9R   CNAME      5R
 138          KO       0       0     0.0       0      22
 139          HC       2   0.344

 140          KK     D11
 141          KO       0       0     0.0       1      22
 142          BA  0.2745
 143          LG    0.25   0.068  11.957   0.026     0.0
              * S_Graph
 144          UI     0.0    23.3   30.95   81.36  128.15  169.24  203.37  219.66  220.91  204.82
 145          UI  168.73  134.25  108.96   87.63   69.31   55.71   44.98   36.53   27.88   24.69
 146          UI   16.04   15.95   12.62    5.67    5.67    5.67    5.67    5.67    5.67    5.67

 147          KK     11R   CNAME    CD13
 148          KO       0       0     0.0       0      22
 149          RS       5    FLOW    -1.0     0.0
 150          RC    0.07    0.05    0.07 2567.25  0.0107     0.0
              * 11R
 151          RX     0.0   95.72  136.73  179.78  242.78  284.97  362.96  459.22
 152          RY  1615.9 1614.41 1613.06 1611.21 1609.81 1611.09 1613.05 1614.92

 153          KK     D10
 154          KO       0       0     0.0       1      22
 155          BA  0.1091
 156          LG    0.25   0.143   9.845   0.069     0.0
              * S_Graph
 157          UI     0.0   15.41    53.2  102.97  138.28  145.02  120.91   83.44   58.06   40.11
 158          UI   27.78   19.17    13.0   10.55    3.92    3.75    3.75    3.75     0.0

 159          KK    CD12   CNAME      7R
 160          KO       0       0     0.0       0      22
 161          HC       2   0.384
1                                          HEC-1 INPUT                                                    PAGE  5

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


 162          KK     12R   CNAME    CD12
 163          KO       0       0     0.0       0      22
 164          RS       2    FLOW    -1.0     0.0
 165          RC    0.07    0.05    0.07  715.73  0.0144     0.0
              * 12R
 166          RX     0.0   76.32  139.39  168.25  213.85  248.85  270.99  300.69
 167          RY  1595.3 1593.21 1591.17  1590.5 1588.73 1592.97 1594.55 1595.49

 168          KK      D8
 169          KO       0       0     0.0       1      22
 170          BA  0.0194
 171          LG    0.25    0.15   8.537   0.107     0.0
              * S_Graph
 172          UI     0.0   15.78   51.66   46.13   21.11     9.3    4.05    1.49     0.0

 173          KK    CD9L   CNAME      5R
 174          KO       0       0     0.0       0      22
 175          HC       2   0.403
```

```
 176          KK     CD9   CNAME      5R
 177          KO       0       0     0.0       0      22
 178          HC       2   0.748

 179          KK      9R   CNAME     CD9
 180          KO       0       0     0.0       0      22
 181          RS       1    FLOW    -1.0     0.0
 182          RC    0.07    0.05    0.07 1593.51    0.01     0.0
              * 9R
 183          RX     0.0   44.72  101.29  125.14  181.76  233.61  299.38  378.69
 184          RY  1587.5 1585.15 1581.42 1578.34 1576.66  1576.3 1580.27 1584.99

 185          KK      D6
 186          KO       0       0     0.0       1      22
 187          BA  0.0412
 188          LG    0.25   0.168   6.818   0.206     0.0
              * S_Graph
 189          UI     0.0   21.25   77.59    98.0    60.4   30.82   15.69    8.21    3.06     2.6
 190          UI     0.0

 191          KK    CD5L   CNAME      4R
 192          KO       0       0     0.0       0      22
 193          HC       2   0.789

 194          KK     CD5   CNAME      4R
 195          KO       0       0     0.0       0      22
 196          HC       2   1.672

 197          KK      5R   CNAME     CD5
 198          KO       0       0     0.0       0      22
 199          RS       3    FLOW    -1.0     0.0
 200          RC    0.07    0.05    0.07 2500.13  0.0057     0.0
              * 5R
 201          RX     0.0  144.52  215.99  290.72  437.61  509.48  632.04  670.06
 202          RY  1577.4 1570.09 1566.58 1562.23 1559.51  1566.9 1576.41 1578.03
```



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

 203          KK      D5
 204          KO       0       0     0.0       1      22
 205          BA  0.1553
 206          LG   0.262   0.218   6.539   0.222     0.0
              * S_Graph
 207          UI     0.0   23.74   93.59  172.06  220.52  215.68  157.49  106.54   71.73   47.61
 208          UI   31.94   21.24   16.25     6.2    5.78    5.78    5.78     0.0

 209          KK      D4
 210          KO       0       0     0.0       1      22
 211          BA   0.087
 212          LG    0.25   0.098  11.246   0.037     0.0
              * S_Graph
 213          UI     0.0    7.94   12.45   30.59   47.61   61.94   72.02   76.09   72.77   61.94
 214          UI   49.22   38.75   30.75   24.06   18.98   15.08   12.17    8.71    7.46    5.44
 215          UI    5.44    2.48    1.93    1.93    1.93    1.93    1.93    1.93

 216          KK     CD4   CNAME      3R
 217          KO       0       0     0.0       0      22
 218          HC       3   1.914

 219          KK      V1
 220          KM    10'x10'RCBC under State Route 74
              * RESERVOIR STORAGE
 221          KO       0       0     0.0       0      22
 222          RS       1    STOR     0.0     0.0
              * Area Curve D4
 223          SA     0.0    0.13    1.34    3.15    5.39    7.96   10.84   14.45   18.52   22.94
              * Elevation Curve D4
 224          SE  1548.0  1550.0  1552.0  1554.0  1556.0  1558.0  1560.0  1562.0  1564.0  1566.0
              * Discharge Curve D4
 225          SQ     0.0    69.3  196.01   360.1  554.41  774.81 1018.51 1256.98 1463.59 1648.78

 226          KK      4R   CNAME     CD4
 227          KO       0       0     0.0       0      22
 228          RS       2    FLOW    -1.0     0.0
 229          RC    0.07    0.05    0.07  682.24  0.0114     0.0
              * 4R
 230          RX     0.0   89.81  168.15  230.76   309.1  369.18  423.89  442.89
 231          RY  1561.5 1555.71 1549.35 1547.15 1546.87 1547.16  1553.3  1556.4

 232          KK      D3
 233          KO       0       0     0.0       1      22
 234          BA   0.099
 235          LG   0.276   0.144   9.819    0.07     0.0
              * S_Graph
 236          UI     0.0   12.74   37.46   76.75  107.34  121.15  113.23   85.32   61.29   43.96
 237          UI   31.21   22.31   15.94    11.3    8.72    4.78     3.1     3.1     3.1     3.1
 238          UI     0.0
```



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

```
239          KK     CD3   CNAME      3R
240          KO       0       0     0.0       0      22
241          HC       2   2.013

242          KK      3R   CNAME     CD3
243          KO       0       0     0.0       0      22
244          RS       4    FLOW    -1.0     0.0
245          RC    0.07    0.05    0.07 2578.68  0.0077     0.0
             * 3R
246          RX     0.0  132.77  231.49  328.57  385.19  472.64  536.46  624.69
247          RY  1545.8 1537.49 1535.14 1534.99  1535.0 1537.01 1542.55 1549.07

248          KK      D1
249          KO       0       0     0.0       1      22
250          BA  0.1247
251          LG    0.25   0.211   6.394   0.246     0.0
             * S_Graph
252          UI     0.0   25.43   98.01   173.0  202.99  168.21  108.75   69.86   44.25   28.16
253          UI   17.78   11.85    5.22    5.22    5.22     0.0

254          KK     CD1   CNAME     97R
255          KO       0       0     0.0       0      22
256          HC       3   2.166

257          KK      1R   CNAME     CD1
258          KO       0       0     0.0       0      22
259          RN      1R
260          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   32          D2
                V
                V
   37          V2
                V
                V
   44              2R
                .
                .
   50           .        D16
                .          V
                .          V
   58           .        16R
                .          .
                .          .
   64           .          .         D15
                .          .           .
                .          .           .
   70           .        CD7...........
                .          V
                .          V
   73           .         7R
                .          .
                .          .
   79           .          .         D14
                .          .           .
                .          .           .
   85           .        CD6...........
                .          V
                .          V
   88           .         6R
                .          .
                .          .
   94           .          .          D7
                .          .           .
                .          .           .
  101           .       CD5R...........
                .          .
                .          .
  104           .          .         D13
                .          .           V
                .          .           V
  111           .          .         13R
                .          .           .
                .          .           .
  117           .          .           .         D12
                .          .           .           .
                .          .           .           .
  123           .          .       CD10...........
                .          .           V
                .          .           V
  126           .          .         10R
                .          .           .
                .          .           .
  132           .          .           .          D9
                .          .           .           .
                .          .           .           .
  137           .          .       CD9R...........
                .          .           .
                .          .           .
```

```
140          .          .          .        D11
             .          .          .         V
             .          .          .         V
147          .          .          .        11R
             .          .          .          .
             .          .          .          .
153          .          .          .          .        D10
             .          .          .          .          .
             .          .          .          .          .
159          .          .          .       CD12............
             .          .          .         V
             .          .          .         V
162          .          .          .        12R
             .          .          .          .
             .          .          .          .
168          .          .          .          .         D8
             .          .          .          .          .
             .          .          .          .          .
173          .          .          .       CD9L............
             .          .          .          .
             .          .          .          .
176          .          .       CD9............
             .          .         V
             .          .         V
179          .          .        9R
             .          .          .
             .          .          .
185          .          .          .         D6
             .          .          .          .
             .          .          .          .
191          .          .      CD5L............
             .          .          .
             .          .          .
194          .       CD5............
             .         V
             .         V
197          .        5R
             .          .
             .          .
203          .          .         D5
             .          .          .
             .          .          .
209          .          .          .         D4
             .          .          .          .
             .          .          .          .
216          .       CD4........................
             .         V
             .         V
219          .        V1
             .         V
             .         V
226          .        4R
             .          .
             .          .
232          .          .         D3
             .          .          .
             .          .          .
239          .       CD3............
             .         V
             .         V
242          .        3R
             .          .
             .          .
248          .          .         D1
             .          .          .
             .          .          .
254       CD1........................
            V
            V
257        1R
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   13JUN04  TIME  20:20:56  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

HEC-1 Analysis using WMS
New River West Tributaries FDS - FCD 2003 C057
Basin D - 100-Year 6-Hour Storm Event
April 2004

```
  6 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
```

```
 7 IN          TIME DATA FOR INPUT TIME SERIES
                    JXMIN          15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME           0  STARTING TIME

12 IN          TIME DATA FOR INPUT TIME SERIES
                    JXMIN          15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME           0  STARTING TIME

17 IN          TIME DATA FOR INPUT TIME SERIES
                    JXMIN          15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME           0  STARTING TIME

22 IN          TIME DATA FOR INPUT TIME SERIES
                    JXMIN          15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME           0  STARTING TIME

27 IN          TIME DATA FOR INPUT TIME SERIES
                    JXMIN          15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME           0  STARTING TIME

   IT          HYDROGRAPH TIME DATA
                     NMIN           5  MINUTES IN COMPUTATION INTERVAL
                    IDATE     28APR 4  STARTING DATE
                    ITIME        0000  STARTING TIME
                       NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     28APR 4  ENDING DATE
                   NDTIME        1635  ENDING TIME
                    ICENT          19  CENTURY MARK

                COMPUTATION INTERVAL     .08 HOURS
                     TOTAL TIME BASE   16.58 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

 8 JD          INDEX STORM NO. 1
                    STRM        3.34  PRECIPITATION DEPTH
                    TRDA         .01  TRANSPOSITION DRAINAGE AREA

 9 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                    .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                    .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00

13 JD          INDEX STORM NO. 2
                    STRM        3.32  PRECIPITATION DEPTH
                    TRDA         .50  TRANSPOSITION DRAINAGE AREA

14 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                    .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                    .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00

18 JD          INDEX STORM NO. 3
                    STRM        3.29  PRECIPITATION DEPTH
                    TRDA        1.00  TRANSPOSITION DRAINAGE AREA

19 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                    .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                    .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00

23 JD          INDEX STORM NO. 4
                    STRM        3.20  PRECIPITATION DEPTH
                    TRDA        5.00  TRANSPOSITION DRAINAGE AREA

24 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

 28 JD        INDEX STORM NO. 5
                STRM        3.14  PRECIPITATION DEPTH
                TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 29 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .01
                .01       .01       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                .03       .03       .06       .06       .06       .07       .07       .07       .04       .04
                .04       .02       .02       .02       .01       .01       .01       .01       .01       .01
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 32 KK    *        D2  *
          *            *
          **************

 33 KO        OUTPUT CONTROL VARIABLES
                IPRNT           4  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE
                IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                 IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 34 BA        SUBBASIN CHARACTERISTICS
                TAREA         .03  SUBBASIN AREA

 35 LG        GREEN AND AMPT LOSS RATE
                STRTL         .25  STARTING LOSS
                  DTH         .21  MOISTURE DEFICIT
                 PSIF        6.40  WETTING FRONT SUCTION
                XKSAT         .25  HYDRAULIC CONDUCTIVITY
                RTIMP         .00  PERCENT IMPERVIOUS AREA

 34 UI        INPUT UNITGRAPH,   6 ORDINATES,  VOLUME =  .99
                .0      50.5     106.5      41.8      13.0       3.5

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 37 KK    *        V2  *
          *            *
          **************
                     24" CMP Under State Route 74

 39 KO        OUTPUT CONTROL VARIABLES
                IPRNT           4  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE
                IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                 IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 40 RS        STORAGE ROUTING
                NSTPS           1  NUMBER OF SUBREACHES
                 ITYP        STOR  TYPE OF INITIAL CONDITION
               RSVRIC         .00  INITIAL CONDITION
                    X         .00 WORKING R AND D COEFFICIENT

 41 SA          AREA          .0        .1        .5       1.1       2.0

 42 SE       ELEVATION     1556.00   1558.00   1560.00   1562.00   1564.00
```

```
 43 SQ          DISCHARGE          0.       12.       23.       26.       29.
                                                                  ***

                                                COMPUTED STORAGE-ELEVATION DATA

           STORAGE        .00       .09       .68      2.20      5.18
         ELEVATION    1556.00   1558.00   1560.00   1562.00   1564.00


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
 44 KK     *               2R  *        CNAME     CD2
           *            *
           **************

 45 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 46 RS          STORAGE ROUTING
                      NSTPS           6  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 47 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2887.  REACH LENGTH
                        SEL       .0115  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 49 RY        ELEVATION   1554.60   1551.28   1550.60   1550.00   1549.79   1551.27   1552.58   1553.92
 48 RX        DISTANCE        .00    106.98    133.23    151.11    173.96    204.04    245.67    296.24
                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE        .00       .27       .87      1.68      2.71      4.00      5.54      7.34      9.41     11.75
           OUTFLOW        .00      3.48     19.22     48.42     97.12    164.56    253.40    374.24    519.78    691.70
         ELEVATION    1549.79   1550.04   1550.30   1550.55   1550.80   1551.06   1551.31   1551.56   1551.82   1552.07

           STORAGE      14.37     17.26     20.43     23.90     27.67     31.73     36.10     40.72     45.48     50.39
           OUTFLOW     891.53   1120.75   1379.94   1672.01   1998.56   2361.18   2761.37   3215.33   3715.22   4254.14
         ELEVATION    1552.32   1552.57   1552.83   1553.08   1553.33   1553.59   1553.84   1554.09   1554.35   1554.60

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       97. TO     4254.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
 50 KK     *       D16  *
           *            *
           **************

 51 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 52 BA          SUBBASIN CHARACTERISTICS
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                    TAREA          .44  SUBBASIN AREA

 53 LG          GREEN AND AMPT LOSS RATE
                    STRTL          .31  STARTING LOSS
                      DTH          .25  MOISTURE DEFICIT
                     PSIF         8.28  WETTING FRONT SUCTION
                    XKSAT          .09  HYDRAULIC CONDUCTIVITY
                    RTIMP         4.26  PERCENT IMPERVIOUS AREA

 52 UI          INPUT UNITGRAPH,  38 ORDINATES,  VOLUME = 1.00
                      .0      28.9      28.9      63.5     112.6     157.4     196.5     235.3     258.1     275.9
                   276.8     263.1     238.8     201.9     169.0     143.6     121.3     103.1      85.4      72.2
                    60.3      52.8      44.3      35.8      30.6      26.3      19.8      19.8      19.8       7.7
                     7.0       7.0       7.0       7.0       7.0       7.0       7.0       7.0

                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


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            *            *
 58 KK      *       16R  *        CNAME     CD8
            *            *
            **************

 59 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

 60 RS          STORAGE ROUTING
                    NSTPS           6  NUMBER OF SUBREACHES
                     ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                        X         .00 WORKING R AND D COEFFICIENT

 61 RC          NORMAL DEPTH CHANNEL
                      ANL        .070  LEFT OVERBANK N-VALUE
                     ANCH        .050  MAIN CHANNEL N-VALUE
                      ANR        .070  RIGHT OVERBANK N-VALUE
                    RLNTH       3197.  REACH LENGTH
                      SEL       .0083  ENERGY SLOPE
                    ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 63 RY        ELEVATION   1652.90   1650.46   1648.81   1644.26   1643.03   1645.52   1647.01   1649.23
 62 RX        DISTANCE        .00     97.17    139.71    218.92    279.08    370.79    430.96    513.83

                                                                  ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .85      3.40      7.52     12.76     19.07     26.51     35.09     44.81     55.63
          OUTFLOW        .00     12.79     81.20    245.76    517.09    914.19   1484.00   2189.50   3039.45   4041.54
        ELEVATION    1643.03   1643.55   1644.07   1644.59   1645.11   1645.63   1646.15   1646.67   1647.19   1647.71

          STORAGE      67.54     80.52     94.66    109.63    125.10    141.16    157.99    175.61    194.02    213.22
          OUTFLOW    5202.08   6528.39   8176.45  10103.19  12221.00  14525.19  17023.19  19719.95  22618.48  25722.07
        ELEVATION    1648.23   1648.74   1649.26   1649.78   1650.30   1650.82   1651.34   1651.86   1652.38   1652.90

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      246. TO    25722.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


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            *            *
 64 KK      *       D15  *
            *            *
            **************

 65 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
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                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 66 BA        SUBBASIN CHARACTERISTICS
                   TAREA         .15  SUBBASIN AREA

 67 LG        GREEN AND AMPT LOSS RATE
                   STRTL         .25  STARTING LOSS
                     DTH         .22  MOISTURE DEFICIT
                    PSIF        6.40  WETTING FRONT SUCTION
                   XKSAT         .24  HYDRAULIC CONDUCTIVITY
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

 66 UI        INPUT UNITGRAPH,  19 ORDINATES,  VOLUME = 1.00
                     .0      20.2      61.0     123.1     171.8     192.8     176.4     130.6      93.5      66.7
                   47.0      34.2      23.6      16.5      13.8       5.7       4.9       4.9       4.9
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 70 KK    *       CD7  *        CNAME      7R
          *            *
          **************

 71 KO        OUTPUT CONTROL VARIABLES
                  IPRNT           4  PRINT CONTROL
                  IPLOT           0  PLOT CONTROL
                  QSCAL          0.  HYDROGRAPH PLOT SCALE
                  IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                   IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                  ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                  ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                 TIMINT        .083  TIME INTERVAL IN HOURS

 72 HC        HYDROGRAPH COMBINATION
                  ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 73 KK    *        7R  *        CNAME     CD7
          *            *
          **************

 74 KO        OUTPUT CONTROL VARIABLES
                  IPRNT           4  PRINT CONTROL
                  IPLOT           0  PLOT CONTROL
                  QSCAL          0.  HYDROGRAPH PLOT SCALE
                  IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                   IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                  ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                  ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                 TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 75 RS        STORAGE ROUTING
                  NSTPS           4  NUMBER OF SUBREACHES
                   ITYP        FLOW  TYPE OF INITIAL CONDITION
                 RSVRIC       -1.00  INITIAL CONDITION
                      X         .00 WORKING R AND D COEFFICIENT

 76 RC        NORMAL DEPTH CHANNEL
                    ANL        .070  LEFT OVERBANK N-VALUE
                   ANCH        .050  MAIN CHANNEL N-VALUE
                    ANR        .070  RIGHT OVERBANK N-VALUE
                  RLNTH       1675.  REACH LENGTH
                    SEL       .0118  ENERGY SLOPE
                  ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 78 RY     ELEVATION   1620.20   1615.38   1612.18   1610.32   1610.17   1611.02   1613.33   1615.56
 77 RX     DISTANCE        .00     89.54    134.31    164.73    203.64    243.00    294.86    334.22
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA
```

```
          STORAGE        .00       .97      2.70      4.89      7.49     10.50     13.89     17.65     21.75     26.18
          OUTFLOW        .00     41.57    186.20    447.37    823.02   1345.68   1991.77   2769.32   3675.82   4714.57
        ELEVATION    1610.17   1610.70   1611.23   1611.75   1612.28   1612.81   1613.34   1613.86   1614.39   1614.92

          STORAGE      30.96     36.05     41.34     46.82     52.51     58.40     64.48     70.77     77.25     83.93
          OUTFLOW    5888.08   7244.74   8757.88  10413.74  12212.27  14153.80  16238.95  18468.55  20843.59  23365.18
        ELEVATION    1615.45   1615.98   1616.50   1617.03   1617.56   1618.09   1618.62   1619.14   1619.67   1620.20

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       42. TO    23365.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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          *            *
 79 KK    *       D14  *
          *            *
          **************

 80 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 81 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .11  SUBBASIN AREA

 82 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .34  STARTING LOSS
                        DTH         .36  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .17  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 81 UI          INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                        .0      17.9      70.9     128.1     158.6     145.8     100.6      66.6      43.8      29.0
                      19.1      11.9       7.6       4.1       4.1       4.1
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 85 KK    *       CD6  *        CNAME      6R
          *            *
          **************

 86 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 87 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 88 KK    *        6R  *        CNAME     CD6
          *            *
          **************

 89 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
```

```
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 90 RS        STORAGE ROUTING
                    NSTPS          6  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

 91 RC        NORMAL DEPTH CHANNEL
                      ANL       .070  LEFT OVERBANK N-VALUE
                     ANCH       .050  MAIN CHANNEL N-VALUE
                      ANR       .070  RIGHT OVERBANK N-VALUE
                    RLNTH      3082.  REACH LENGTH
                      SEL      .0110  ENERGY SLOPE
                    ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 93 RY      ELEVATION   1598.10   1592.96   1590.67   1587.80   1586.67   1587.85   1591.63   1595.16
 92 RX      DISTANCE        .00     98.25    141.25    183.25    239.25    288.25    372.25    435.64

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.17      4.66      9.66     15.62     22.51     30.35     39.14     48.95     59.79
          OUTFLOW        .00     23.12    149.63    458.50    916.86   1527.82   2297.80   3272.23   4499.97   5932.62
        ELEVATION    1586.67   1587.27   1587.87   1588.47   1589.08   1589.68   1590.28   1590.88   1591.48   1592.08

          STORAGE      71.57     84.29     97.95    112.57    128.14    144.47    161.30    178.61    196.42    214.71
          OUTFLOW    7570.39   9416.89  11478.91  13763.33  16276.85  19160.31  22297.58  25670.79  29279.82  33124.92
        ELEVATION    1592.69   1593.29   1593.89   1594.49   1595.09   1595.69   1596.30   1596.90   1597.50   1598.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      150. TO    33125.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


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          **************
          *            *
 94 KK    *        D7  *
          *            *
          **************

 95 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 96 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .18  SUBBASIN AREA

 97 LG        GREEN AND AMPT LOSS RATE
                    STRTL        .33  STARTING LOSS
                      DTH        .35  MOISTURE DEFICIT
                     PSIF       6.40  WETTING FRONT SUCTION
                    XKSAT        .17  HYDRAULIC CONDUCTIVITY
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

 96 UI        INPUT UNITGRAPH,  23 ORDINATES,  VOLUME = 1.00
                      .0      20.2      45.3     101.3     149.0     182.6     193.4     177.4     137.7     103.6
                    78.5      58.6      42.5      33.6      24.0      18.3      13.9      10.6       4.9       4.9
                     4.9       4.9       4.9

                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
101 KK    *      CD5R  *        CNAME      4R
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            *            *
            **************

 102 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 103 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 104 KK     *       D13  *
            *            *
            **************

 105 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

               SUBBASIN RUNOFF DATA

 106 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .21  SUBBASIN AREA

 107 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .15  MOISTURE DEFICIT
                       PSIF        8.52  WETTING FRONT SUCTION
                      XKSAT         .11  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 106 UI          INPUT UNITGRAPH,  24 ORDINATES,  VOLUME = 1.00
                        .0      21.8      44.3     103.7     153.0     190.7     208.5     198.2     163.5     122.9
                      94.1      71.4      53.8      41.2      31.9      23.1      16.8      14.9       8.9       5.3
                       5.3       5.3       5.3       5.3

                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 111 KK     *       13R  *        CNAME    CD11
            *            *
            **************

 112 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

               HYDROGRAPH ROUTING DATA

 113 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 114 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2427.  REACH LENGTH
```

```
                    SEL       .0099  ENERGY SLOPE
                  ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
116 RY      ELEVATION  1620.00   1616.54   1615.21   1614.78   1614.92   1618.02   1619.81   1620.13
115 RX      DISTANCE        .00    169.81    274.12    350.15    420.86    520.26    596.29    646.83

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

         STORAGE        .00      1.24      3.62      6.54      9.95     13.85     18.24     23.08     28.28     33.84
         OUTFLOW        .00     20.94    103.73    252.02    459.35    726.95   1057.02   1456.10   1921.83   2453.94
       ELEVATION    1614.78   1615.06   1615.34   1615.62   1615.91   1616.19   1616.47   1616.75   1617.03   1617.31

         STORAGE      39.76     46.03     52.68     59.72     67.16     75.01     83.26     91.92    100.99    110.76
         OUTFLOW    3053.98   3723.68   4505.22   5404.59   6384.26   7446.45   8593.21   9826.51  11143.33  12581.12
       ELEVATION    1617.60   1617.88   1618.16   1618.44   1618.72   1619.00   1619.29   1619.57   1619.85   1620.13


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      252. TO    12581.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


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          **************
          *            *
117 KK    *      D12   *
          *            *
          **************

118 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

119 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .11  SUBBASIN AREA

120 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .21  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .25  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

119 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                        .0      20.9      81.3     145.9     176.6     154.8     104.1      67.9      43.4      29.2
                      18.1      12.8       5.6       4.5       4.5

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
123 KK    *      CD10  *        CNAME     10R
          *            *
          **************

124 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


125 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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            **************
            *            *
126 KK      *     10R    *        CNAME    CD10
            *            *
            **************

127 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

128 RS          STORAGE ROUTING
                      NSTPS           3  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

129 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1159.  REACH LENGTH
                        SEL       .0132  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
131 RY        ELEVATION   1595.70   1593.12   1591.43   1590.98   1590.27   1593.57   1595.63   1597.25
130 RX        DISTANCE        .00     71.00     98.00    130.00    173.00    227.23    259.62    292.62

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .14       .55      1.27      2.22      3.30      4.49      5.80      7.22      8.79
          OUTFLOW        .00      5.74     36.37    107.21    251.58    454.43    711.67   1023.98   1391.45   1816.18
        ELEVATION    1590.27   1590.64   1591.00   1591.37   1591.74   1592.11   1592.47   1592.84   1593.21   1593.58

          STORAGE      10.52     12.41     14.44     16.64     18.99     21.49     24.09     26.77     29.52     32.34
          OUTFLOW    2359.35   2973.05   3659.85   4422.18   5262.40   6191.94   7238.84   8367.46   9577.28  10868.01
        ELEVATION    1593.94   1594.31   1594.68   1595.05   1595.41   1595.78   1596.15   1596.51   1596.88   1597.25


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       36. TO    10868.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
132 KK      *      D9    *
            *            *
            **************

133 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

134 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .03  SUBBASIN AREA

135 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .27  STARTING LOSS
                        DTH         .24  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .23  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

134 UI          INPUT UNITGRAPH,   9 ORDINATES,  VOLUME = 1.00
                        .0      20.1      67.1      63.3      30.0      13.4       6.3       2.0       2.0

                                                          ***
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
137 KK    *     CD9R   *        CNAME      5R
          *            *
          **************

138 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

139 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
140 KK    *      D11   *
          *            *
          **************

141 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

142 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .27  SUBBASIN AREA

143 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .07  MOISTURE DEFICIT
                       PSIF       11.96  WETTING FRONT SUCTION
                      XKSAT         .03  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

142 UI          INPUT UNITGRAPH,  30 ORDINATES,  VOLUME = 1.00
                        .0      23.3      31.0      81.4     128.1     169.2     203.4     219.7     220.9     204.8
                     168.7     134.3     109.0      87.6      69.3      55.7      45.0      36.5      27.9      24.7
                      16.0      15.9      12.6       5.7       5.7       5.7       5.7       5.7       5.7       5.7
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
147 KK    *     11R    *        CNAME    CD13
          *            *
          **************

148 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

149 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
```

```
                    ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                       X         .00 WORKING R AND D COEFFICIENT

150 RC          NORMAL DEPTH CHANNEL
                     ANL        .070  LEFT OVERBANK N-VALUE
                    ANCH        .050  MAIN CHANNEL N-VALUE
                     ANR        .070  RIGHT OVERBANK N-VALUE
                   RLNTH       2567.  REACH LENGTH
                     SEL       .0107  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
152 RY        ELEVATION   1615.90   1614.41   1613.06   1611.21   1609.81   1611.09   1613.05   1614.92
151 RX        DISTANCE        .00     95.72    136.73    179.78    242.78    284.97    362.96    459.22

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .24       .94      2.12      3.78      5.90      8.41     11.30     14.57     18.23
          OUTFLOW        .00      3.64     23.13     68.19    146.94    281.04    461.89    689.17    965.66   1294.22
        ELEVATION    1609.81   1610.13   1610.45   1610.77   1611.09   1611.41   1611.73   1612.05   1612.37   1612.70

          STORAGE      22.27     26.73     31.69     37.14     43.09     49.58     56.76     64.46     72.56     81.04
          OUTFLOW    1677.76   2161.78   2719.65   3348.60   4052.16   4829.69   5695.62   6713.10   7823.19   9027.24
        ELEVATION    1613.02   1613.34   1613.66   1613.98   1614.30   1614.62   1614.94   1615.26   1615.58   1615.90

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      147. TO     9027.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
153 KK    *      D10   *
          *            *
          **************

154 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

155 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .11  SUBBASIN AREA

156 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .25  STARTING LOSS
                       DTH         .14  MOISTURE DEFICIT
                      PSIF        9.85  WETTING FRONT SUCTION
                     XKSAT         .07  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

155 UI          INPUT UNITGRAPH,  18 ORDINATES,  VOLUME = 1.00
                       .0      15.4      53.2     103.0     138.3     145.0     120.9      83.4      58.1      40.1
                     27.8      19.2      13.0      10.6       3.9       3.8       3.8       3.8

                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
159 KK    *      CD12  *        CNAME      7R
          *            *
          **************

160 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS
```

```
161 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
162 KK    *       12R  *        CNAME    CD12
          *            *
          **************

163 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

164 RS          STORAGE ROUTING
                     NSTPS           2  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

165 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH        716.  REACH LENGTH
                       SEL       .0144  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
167 RY        ELEVATION   1595.30   1593.21   1591.17   1590.50   1588.73   1592.97   1594.55   1595.49
166 RX        DISTANCE        .00     76.32    139.39    168.25    213.85    248.85    270.99    300.69
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .04       .14       .32       .57       .88      1.29      1.81      2.41      3.10
          OUTFLOW        .00      2.43     15.44     45.54     98.07    177.50    280.35    432.90    669.36    954.64
        ELEVATION    1588.73   1589.09   1589.44   1589.80   1590.15   1590.51   1590.86   1591.22   1591.58   1591.93

          STORAGE       3.87      4.72      5.65      6.67      7.79      9.02     10.36     11.81     13.39     15.11
          OUTFLOW    1291.19   1681.35   2130.43   2670.83   3275.30   3949.64   4697.13   5517.47   6419.85   7447.97
        ELEVATION    1592.29   1592.64   1593.00   1593.36   1593.71   1594.07   1594.42   1594.78   1595.14   1595.49

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       15. TO     7448.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
168 KK    *        D8  *
          *            *
          **************

169 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

170 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .02  SUBBASIN AREA

171 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .25  STARTING LOSS
```

```
                    DTH        .15  MOISTURE DEFICIT
                   PSIF       8.54  WETTING FRONT SUCTION
                  XKSAT        .11  HYDRAULIC CONDUCTIVITY
                  RTIMP        .00  PERCENT IMPERVIOUS AREA

170 UI          INPUT UNITGRAPH,   8 ORDINATES,  VOLUME = 1.00
                     .0      15.8      51.7      46.1      21.1       9.3       4.1       1.5
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
173 KK      *      CD9L  *        CNAME      5R
            *            *
            **************

174 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

175 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
176 KK      *       CD9  *        CNAME      5R
            *            *
            **************

177 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

178 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
179 KK      *        9R  *        CNAME     CD9
            *            *
            **************

180 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

                HYDROGRAPH ROUTING DATA

181 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

182 RC          NORMAL DEPTH CHANNEL
```

```
                    ANL        .070  LEFT OVERBANK N-VALUE
                   ANCH        .050  MAIN CHANNEL N-VALUE
                    ANR        .070  RIGHT OVERBANK N-VALUE
                  RLNTH       1594.  REACH LENGTH
                    SEL       .0100  ENERGY SLOPE
                  ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
184 RY      ELEVATION   1587.50   1585.15   1581.42   1578.34   1576.66   1576.30   1580.27   1584.99
183 RX      DISTANCE        .00     44.72    101.29    125.14    181.76    233.61    299.38    378.69

                                                  ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .91      2.73      5.18      8.23     11.62     15.32     19.32     23.64     28.28
          OUTFLOW        .00     36.76    178.45    432.90    842.08   1407.94   2107.03   2940.11   3909.17   5045.63
        ELEVATION    1576.30   1576.89   1577.48   1578.07   1578.66   1579.25   1579.84   1580.43   1581.02   1581.61

          STORAGE      33.30     38.72     44.55     50.79     57.44     64.48     71.80     79.36     87.17     95.21
          OUTFLOW    6393.19   7901.19   9575.97  11423.34  13448.88  15699.69  18249.75  20990.14  23921.59  27045.07
        ELEVATION    1582.19   1582.78   1583.37   1583.96   1584.55   1585.14   1585.73   1586.32   1586.91   1587.50


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     9576. TO    27045.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
185 KK    *        D6  *
          *            *
          **************

186 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

187 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .04  SUBBASIN AREA

188 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .17  MOISTURE DEFICIT
                       PSIF        6.82  WETTING FRONT SUCTION
                      XKSAT         .21  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

187 UI          INPUT UNITGRAPH,  10 ORDINATES,  VOLUME = 1.00
                       .0      21.3      77.6      98.0      60.4      30.8      15.7       8.2       3.1       2.6

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
191 KK    *      CD5L  *        CNAME      4R
          *            *
          **************

192 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


193 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***
```

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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
194 KK    *       CD5  *        CNAME      4R
          *            *
          **************

195 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

196 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
197 KK    *        5R  *        CNAME     CD5
          *            *
          **************

198 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

199 RS          STORAGE ROUTING
                      NSTPS           3  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

200 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2500.  REACH LENGTH
                        SEL      .0057  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
202 RY        ELEVATION   1577.40   1570.09   1566.58   1562.23   1559.51   1566.90   1576.41   1578.03
201 RX        DISTANCE        .00    144.52    215.99    290.72    437.61    509.48    632.04    670.06

                                                          ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.74      6.95     15.59     26.33     38.54     52.21     67.35     84.02    102.47
          OUTFLOW        .00     42.16    267.68    807.33   1764.32   3071.40   4742.17   6794.58   9538.04  12909.51
        ELEVATION    1559.51   1560.48   1561.46   1562.43   1563.41   1564.38   1565.36   1566.33   1567.31   1568.28

          STORAGE     122.73    144.81    168.68    194.32    221.75    250.96    281.95    314.73    349.41    386.18
          OUTFLOW   16761.19  21110.97  25975.59  31368.56  37304.78  43799.06  50866.14  58520.71  66689.70  75692.70
        ELEVATION    1569.26   1570.23   1571.21   1572.18   1573.16   1574.13   1575.11   1576.08   1577.06   1578.03

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     1764. TO    75693.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
203 KK    *        D5  *
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            *            *
            **************

204 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

205 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .16  SUBBASIN AREA

206 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .26  STARTING LOSS
                        DTH         .22  MOISTURE DEFICIT
                       PSIF        6.54  WETTING FRONT SUCTION
                      XKSAT         .22  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

205 UI          INPUT UNITGRAPH,  17 ORDINATES,  VOLUME = 1.00
                        .0      23.7      93.6     172.1     220.5     215.7     157.5     106.5      71.7      47.6
                      31.9      21.2      16.3       6.2       5.8       5.8       5.8
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
209 KK      *        D4  *
            *            *
            **************

210 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

211 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .09  SUBBASIN AREA

212 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .10  MOISTURE DEFICIT
                       PSIF       11.25  WETTING FRONT SUCTION
                      XKSAT         .04  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

211 UI          INPUT UNITGRAPH,  28 ORDINATES,  VOLUME = 1.00
                        .0       7.9      12.4      30.6      47.6      61.9      72.0      76.1      72.8      61.9
                      49.2      38.8      30.8      24.1      19.0      15.1      12.2       8.7       7.5       5.4
                       5.4       2.5       1.9       1.9       1.9       1.9       1.9       1.9
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
216 KK      *       CD4  *        CNAME      3R
            *            *
            **************

217 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS
```

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218 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                 ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
219 KK     *        V1  *
           *            *
           **************
                         10'x10'RCBC under State Route 74

221 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

222 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC         .00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

223 SA               AREA          .0        .1       1.3       3.2       5.4       8.0      10.8      14.4      18.5      22.9

224 SE          ELEVATION     1548.00   1550.00   1552.00   1554.00   1556.00   1558.00   1560.00   1562.00   1564.00   1566.00

225 SQ          DISCHARGE          0.       69.      196.      360.      554.      775.     1019.     1257.     1464.     1649.

                                                 ***

                                          COMPUTED STORAGE-ELEVATION DATA

           STORAGE        .00       .09      1.34      5.71     14.15     27.42     46.14     71.34    104.23    145.61
         ELEVATION    1548.00   1550.00   1552.00   1554.00   1556.00   1558.00   1560.00   1562.00   1564.00   1566.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO       69.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
226 KK     *        4R  *        CNAME     CD4
           *            *
           **************

227 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

228 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

229 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH        682.  REACH LENGTH
                        SEL       .0114  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
```

```
                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
231 RY       ELEVATION   1561.50   1555.71   1549.35   1547.15   1546.87   1547.16   1553.30   1556.40
230 RX       DISTANCE        .00     89.81    168.15    230.76    309.10    369.18    423.89    442.89

                                                  ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.43      3.49      5.90      8.61     11.53     14.64     17.94     21.44     25.14
          OUTFLOW        .00    203.68    804.93   1747.81   3148.94   4939.13   7079.68   9566.84  12399.71  15591.85
        ELEVATION    1546.87   1547.64   1548.41   1549.18   1549.95   1550.72   1551.49   1552.26   1553.03   1553.80

          STORAGE      29.01     33.05     37.26     41.66     46.21     50.91     55.74     60.72     65.85     71.12
          OUTFLOW   19135.38  23023.64  27246.00  31876.56  36905.89  42295.21  48045.26  54157.32  60633.03  67474.52
        ELEVATION    1554.57   1555.34   1556.11   1556.88   1557.65   1558.42   1559.19   1559.96   1560.73   1561.50

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      204. TO    67475.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
232 KK      *        D3  *
            *            *
            **************

233 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


                SUBBASIN RUNOFF DATA

234 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .10  SUBBASIN AREA

235 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .28  STARTING LOSS
                        DTH         .14  MOISTURE DEFICIT
                       PSIF        9.82  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

234 UI          INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                        .0      12.7      37.5      76.8     107.3     121.2     113.2      85.3      61.3      44.0
                      31.2      22.3      15.9      11.3       8.7       4.8       3.1       3.1       3.1       3.1

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
239 KK      *       CD3  *        CNAME      3R
            *            *
            **************

240 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


241 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
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            *            *
242 KK      *        3R  *        CNAME     CD3
            *            *
            **************

243 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

244 RS          STORAGE ROUTING
                      NSTPS           4  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

245 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2579.  REACH LENGTH
                        SEL       .0077  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
247 RY        ELEVATION   1545.80   1537.49   1535.14   1534.99   1535.00   1537.01   1542.55   1549.07
246 RX        DISTANCE        .00    132.77    231.49    328.57    385.19    472.64    536.46    624.69

                                                   ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      7.42     18.04     31.39     46.60     62.76     79.82     97.76    116.61    136.34
          OUTFLOW        .00    234.19    854.85   1889.46   3443.70   5406.11   7749.38  10465.46  13550.44  17002.98
        ELEVATION    1534.99   1535.73   1536.47   1537.21   1537.95   1538.70   1539.44   1540.18   1540.92   1541.66

          STORAGE     156.97    178.52    201.02    224.48    248.91    274.24    300.11    326.42    353.16    380.35
          OUTFLOW   20823.45  25006.29  29562.40  34497.86  39817.12  45660.54  52088.50  58905.78  66109.23  73696.52
        ELEVATION    1542.40   1543.14   1543.88   1544.62   1545.37   1546.11   1546.85   1547.59   1548.33   1549.07


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      855. TO    73697.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
248 KK      *        D1  *
            *            *
            **************

249 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

250 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .12  SUBBASIN AREA

251 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .21  MOISTURE DEFICIT
                       PSIF        6.39  WETTING FRONT SUCTION
                      XKSAT         .25  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

250 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                        .0      25.4      98.0     173.0     203.0     168.2     108.8      69.9      44.3      28.2
                      17.8      11.9       5.2       5.2       5.2

                                                   ***
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 254 KK     *       CD1  *        CNAME     97R
            *            *
            **************

 255 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 256 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 257 KK     *        1R  *        CNAME     CD1
            *            *
            **************

 258 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 259 RN          NO ROUTING
                                                          ***
1
                                                RUNOFF SUMMARY
                                          FLOW IN CUBIC FEET PER SECOND
                                       TIME IN HOURS,  AREA IN SQUARE MILES

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

          HYDROGRAPH AT
+                            D2       92.    4.08          5.          2.          2.       .03
          ROUTED TO
+                            V2       24.    4.25          5.          2.          2.       .03
          ROUTED TO
+                            2R       24.    4.75          5.          2.          2.       .03
          HYDROGRAPH AT
+                           D16      522.    4.67         99.         36.         36.       .44
          ROUTED TO
+                           16R      509.    4.92         99.         36.         36.       .44
          HYDROGRAPH AT
+                           D15      282.    4.33         29.         11.         11.       .15
          2 COMBINED AT
+                           CD7      549.    4.83        126.         46.         46.       .60
          ROUTED TO
+                            7R      547.    4.92        126.         46.         46.       .60
          HYDROGRAPH AT
+                           D14      219.    4.25         20.          7.          7.       .11
          2 COMBINED AT
+                           CD6      558.    4.83        144.         52.         52.       .70
          ROUTED TO
+                            6R      555.    5.00        144.         52.         52.       .70
```

+	HYDROGRAPH AT	D7	291.	4.42	34.	12.	12.	.18
+	2 COMBINED AT	CD5R	659.	4.58	173.	63.	63.	.88
+	HYDROGRAPH AT	D13	361.	4.42	47.	17.	17.	.21
+	ROUTED TO	13R	342.	4.58	47.	17.	17.	.21
+	HYDROGRAPH AT	D12	242.	4.25	22.	8.	8.	.11
+	2 COMBINED AT	CD10	435.	4.50	68.	25.	25.	.32
+	ROUTED TO	10R	432.	4.58	68.	25.	25.	.32
+	HYDROGRAPH AT	D9	75.	4.17	5.	2.	2.	.03
+	2 COMBINED AT	CD9R	435.	4.58	73.	27.	27.	.34
+	HYDROGRAPH AT	D11	456.	4.50	78.	28.	28.	.27
+	ROUTED TO	11R	446.	4.67	78.	28.	28.	.27
+	HYDROGRAPH AT	D10	236.	4.33	26.	10.	10.	.11
+	2 COMBINED AT	CD12	557.	4.50	104.	38.	38.	.38
+	ROUTED TO	12R	556.	4.58	104.	38.	38.	.38
+	HYDROGRAPH AT	D8	60.	4.17	4.	2.	2.	.02
+	2 COMBINED AT	CD9L	559.	4.58	108.	39.	39.	.40
+	2 COMBINED AT	CD9	949.	4.58	179.	65.	65.	.75
+	ROUTED TO	9R	933.	4.67	179.	65.	65.	.75
+	HYDROGRAPH AT	D6	117.	4.17	8.	3.	3.	.04
+	2 COMBINED AT	CD5L	934.	4.58	186.	67.	67.	.79
+	2 COMBINED AT	CD5	1461.	4.67	346.	125.	125.	1.67
+	ROUTED TO	5R	1439.	4.83	345.	125.	125.	1.67
+	HYDROGRAPH AT	D5	317.	4.25	30.	11.	11.	.16
+	HYDROGRAPH AT	D4	149.	4.50	23.	8.	8.	.09
+	3 COMBINED AT	CD4	1579.	4.75	391.	142.	142.	1.91
+	ROUTED TO	V1	1046.	5.33	391.	142.	142.	1.91
+	ROUTED TO	4R	1046.	5.33	391.	142.	142.	1.91
+	HYDROGRAPH AT	D3	204.	4.33	24.	9.	9.	.10
+	2 COMBINED AT	CD3	1055.	5.33	412.	149.	149.	2.01
+	ROUTED TO	3R	1051.	5.50	412.	149.	149.	2.01
+	HYDROGRAPH AT	D1	273.	4.25	24.	9.	9.	.12
+	3 COMBINED AT	CD1	1059.	5.42	435.	158.	158.	2.17

ROUTED TO

+	1R	1059.	5.42	435.	158.	158.	2.17

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

Basin D

100 – Year
24 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             JUN   1998               *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   26MAY04  TIME  15:13:45  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin D - 100-Year 24-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   4.254    0.01
              * 24-hour distribution
  9           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 10           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 11           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 12           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 13           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 14           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 15           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 16           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 17           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 18           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 19           IN      15 28APR04       0
 20           JD   4.042    10.0
              * 24-hour distribution
 21           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 23           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 24           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 28           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 30           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

 31           KK      D2
 32           KO       0       0     0.0       1      22
 33           BA   0.028
 34           LG    0.25    0.21     6.4   0.246     0.0
              * S_Graph
 35           UI     0.0   50.47  106.52   41.84    13.0     3.5     0.0

 36           KK      V2
 37           KM    24" CMP Under State Route 74
              * RESERVOIR STORAGE
 38           KO       0       0     0.0       0      22
 39           RS       1    STOR     0.0     0.0
              * Area Curve D2
 40           SA     0.0    0.13     0.5    1.06    1.96
              * Elevation Curve D2
 41           SE  1556.0  1558.0  1560.0  1562.0  1564.0
              * Discharge Curve D2
 42           SQ     0.0    11.6    22.7    25.7    28.5
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
 43          KK            2R   CNAME     CD2
 44          KO        0       0     0.0       0      22
 45          RS        6    FLOW    -1.0     0.0
 46          RC     0.07    0.05    0.07 2887.07  0.0115     0.0
             * 2R
 47          RX      0.0  106.98  133.23  151.11  173.96  204.04  245.67  296.24
 48          RY   1554.6 1551.28  1550.6  1550.0 1549.79 1551.27 1552.58 1553.92

 49          KK     D16
 50          KO        0       0     0.0       1      22
 51          BA   0.4404
 52          LG     0.31   0.247   8.276   0.088   4.265
             * S_Graph
 53          UI      0.0   28.88   28.88   63.45  112.62  157.37   196.5  235.32  258.13  275.94
 54          UI    276.8  263.13  238.83  201.93  168.97  143.61  121.25  103.07   85.37   72.15
 55          UI     60.3   52.78   44.29   35.75   30.61   26.32   19.77   19.77   19.77    7.72
 56          UI     7.03    7.03    7.03    7.03    7.03    7.03    7.03    7.03     0.0

 57          KK     16R   CNAME     CD8
 58          KO        0       0     0.0       0      22
 59          RS        6    FLOW    -1.0     0.0
 60          RC     0.07    0.05    0.07 3196.87  0.0083     0.0
             * 16R
 61          RX      0.0   97.17  139.71  218.92  279.08  370.79  430.96  513.83
 62          RY   1652.9 1650.46 1648.81 1644.26 1643.03 1645.52 1647.01 1649.23

 63          KK     D15
 64          KO        0       0     0.0       1      22
 65          BA   0.1545
 66          LG    0.253   0.215     6.4   0.243     0.0
             * S_Graph
 67          UI      0.0   20.18   61.01  123.14  171.82  192.79  176.38  130.65   93.54   66.68
 68          UI    46.97   34.22   23.64    16.5   13.81     5.7    4.91    4.91    4.91     0.0

 69          KK      CD7   CNAME      7R
 70          KO        0       0     0.0       0      22
 71          HC        2   0.595

 72          KK       7R   CNAME     CD7
 73          KO        0       0     0.0       0      22
 74          RS        4    FLOW    -1.0     0.0
 75          RC     0.07    0.05    0.07 1674.69  0.0118     0.0
             * 7R
 76          RX      0.0   89.54  134.31  164.73  203.64   243.0  294.86  334.22
 77          RY   1620.2 1615.38 1612.18 1610.32 1610.17 1611.02 1613.33 1615.56

 78          KK     D14
 79          KO        0       0     0.0       1      22
 80          BA   0.1051
 81          LG    0.336   0.356     6.4   0.165     0.0
             * S_Graph
 82          UI      0.0   17.94   70.87  128.12  158.59  145.79  100.59   66.61   43.76   28.97
 83          UI    19.06   11.92    7.61     4.1     4.1     4.1     0.0
```



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

 84          KK      CD6   CNAME      6R
 85          KO        0       0     0.0       0      22
 86          HC        2     0.7

 87          KK       6R   CNAME     CD6
 88          KO        0       0     0.0       0      22
 89          RS        6    FLOW    -1.0     0.0
 90          RC     0.07    0.05    0.07 3081.63   0.011     0.0
             * 6R
 91          RX      0.0   98.25  141.25  183.25  239.25  288.25  372.25  435.64
 92          RY   1598.1 1592.96 1590.67  1587.8 1586.67 1587.85 1591.63 1595.16

 93          KK       D7
 94          KO        0       0     0.0       1      22
 95          BA    0.183
 96          LG    0.332    0.35     6.4   0.168     0.0
             * S_Graph
 97          UI      0.0   20.24    45.3  101.27  149.02  182.63  193.44  177.45  137.71  103.63
 98          UI    78.47   58.58   42.46   33.56   24.03   18.34   13.85   10.61    4.93    4.93
 99          UI     4.93    4.93    4.93     0.0

100          KK     CD5R   CNAME      4R
101          KO        0       0     0.0       0      22
102          HC        2   0.883

103          KK      D13
104          KO        0       0     0.0       1      22
105          BA   0.2054
106          LG    0.251   0.151   8.516   0.108     0.0
             * S_Graph
107          UI      0.0   21.75   44.31   103.7  152.96  190.67  208.48  198.22  163.49  122.92
108          UI    94.08   71.39   53.77   41.24   31.89   23.06   16.83   14.89    8.89    5.29
109          UI     5.29    5.29    5.29    5.29     0.0
```

```
 110          KK     13R   CNAME    CD11
 111          KO       0       0     0.0       0      22
 112          RS       5    FLOW    -1.0     0.0
 113          RC    0.07    0.05    0.07 2426.61  0.0099     0.0
              * 13R
 114          RX     0.0  169.81  274.12  350.15  420.86  520.26  596.29  646.83
 115          RY  1620.0 1616.54 1615.21 1614.78 1614.92 1618.02 1619.81 1620.13

 116          KK     D12
 117          KO       0       0     0.0       1      22
 118          BA  0.1128
 119          LG    0.25    0.21     6.4   0.246     0.0
              * S_Graph
 120          UI     0.0   20.89   81.32  145.86   176.6  154.77  104.05   67.87   43.41    29.2
 121          UI   18.07   12.78    5.56    4.54    4.54     0.0
1                                          HEC-1 INPUT                                                    PAGE  4

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


 122          KK    CD10   CNAME     10R
 123          KO       0       0     0.0       0      22
 124          HC       2   0.318

 125          KK     10R   CNAME    CD10
 126          KO       0       0     0.0       0      22
 127          RS       3    FLOW    -1.0     0.0
 128          RC    0.07    0.05    0.07  1159.0  0.0132     0.0
              * 10R
 129          RX     0.0    71.0    98.0   130.0   173.0  227.23  259.62  292.62
 130          RY  1595.7 1593.12 1591.43 1590.98 1590.27 1593.57 1595.63 1597.25

 131          KK      D9
 132          KO       0       0     0.0       1      22
 133          BA  0.0263
 134          LG   0.268   0.241     6.4   0.228     0.0
              * S_Graph
 135          UI     0.0   20.11   67.13   63.28   30.02   13.39    6.31    1.97    1.97

 136          KK    CD9R   CNAME      5R
 137          KO       0       0     0.0       0      22
 138          HC       2   0.344

 139          KK     D11
 140          KO       0       0     0.0       1      22
 141          BA  0.2745
 142          LG    0.25   0.068  11.957   0.026     0.0
              * S_Graph
 143          UI     0.0    23.3   30.95   81.36  128.15  169.24  203.37  219.66  220.91  204.82
 144          UI  168.73  134.25  108.96   87.63   69.31   55.71   44.98   36.53   27.88   24.69
 145          UI   16.04   15.95   12.62    5.67    5.67    5.67    5.67    5.67    5.67    5.67

 146          KK     11R   CNAME    CD13
 147          KO       0       0     0.0       0      22
 148          RS       5    FLOW    -1.0     0.0
 149          RC    0.07    0.05    0.07 2567.25  0.0107     0.0
              * 11R
 150          RX     0.0   95.72  136.73  179.78  242.78  284.97  362.96  459.22
 151          RY  1615.9 1614.41 1613.06 1611.21 1609.81 1611.09 1613.05 1614.92

 152          KK     D10
 153          KO       0       0     0.0       1      22
 154          BA  0.1091
 155          LG    0.25   0.143   9.845   0.069     0.0
              * S_Graph
 156          UI     0.0   15.41    53.2  102.97  138.28  145.02  120.91   83.44   58.06   40.11
 157          UI   27.78   19.17    13.0   10.55    3.92    3.75    3.75    3.75     0.0

 158          KK    CD12   CNAME      7R
 159          KO       0       0     0.0       0      22
 160          HC       2   0.384
1                                          HEC-1 INPUT                                                    PAGE  5

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


 161          KK     12R   CNAME    CD12
 162          KO       0       0     0.0       0      22
 163          RS       2    FLOW    -1.0     0.0
 164          RC    0.07    0.05    0.07  715.73  0.0144     0.0
              * 12R
 165          RX     0.0   76.32  139.39  168.25  213.85  248.85  270.99  300.69
 166          RY  1595.3 1593.21 1591.17  1590.5 1588.73 1592.97 1594.55 1595.49

 167          KK      D8
 168          KO       0       0     0.0       1      22
 169          BA  0.0194
 170          LG    0.25    0.15   8.537   0.107     0.0
              * S_Graph
 171          UI     0.0   15.78   51.66   46.13   21.11     9.3    4.05    1.49     0.0

 172          KK    CD9L   CNAME      5R
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173          KO       0       0     0.0       0      22
174          HC       2   0.403

175          KK     CD9   CNAME      5R
176          KO       0       0     0.0       0      22
177          HC       2   0.748

178          KK      9R   CNAME     CD9
179          KO       0       0     0.0       0      22
180          RS       2    FLOW    -1.0     0.0
181          RC    0.07    0.05    0.07 1593.51    0.01     0.0
             * 9R
182          RX     0.0   44.72  101.29  125.14  181.76  233.61  299.38  378.69
183          RY  1587.5 1585.15 1581.42 1578.34 1576.66  1576.3 1580.27 1584.99

184          KK      D6
185          KO       0       0     0.0       1      22
186          BA  0.0412
187          LG    0.25   0.168   6.818   0.206     0.0
             * S_Graph
188          UI     0.0   21.25   77.59    98.0    60.4   30.82   15.69    8.21    3.06     2.6
189          UI     0.0

190          KK    CD5L   CNAME      4R
191          KO       0       0     0.0       0      22
192          HC       2   0.789

193          KK     CD5   CNAME      4R
194          KO       0       0     0.0       0      22
195          HC       2   1.672

196          KK      5R   CNAME     CD5
197          KO       0       0     0.0       0      22
198          RS       3    FLOW    -1.0     0.0
199          RC    0.07    0.05    0.07 2500.13  0.0057     0.0
             * 5R
200          RX     0.0  144.52  215.99  290.72  437.61  509.48  632.04  670.06
201          RY  1577.4 1570.09 1566.58 1562.23 1559.51  1566.9 1576.41 1578.03
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

202          KK      D5
203          KO       0       0     0.0       1      22
204          BA  0.1553
205          LG   0.262   0.218   6.539   0.222     0.0
             * S_Graph
206          UI     0.0   23.74   93.59  172.06  220.52  215.68  157.49  106.54   71.73   47.61
207          UI   31.94   21.24   16.25     6.2    5.78    5.78    5.78     0.0

208          KK      D4
209          KO       0       0     0.0       1      22
210          BA   0.087
211          LG    0.25   0.098  11.246   0.037     0.0
             * S_Graph
212          UI     0.0    7.94   12.45   30.59   47.61   61.94   72.02   76.09   72.77   61.94
213          UI   49.22   38.75   30.75   24.06   18.98   15.08   12.17    8.71    7.46    5.44
214          UI    5.44    2.48    1.93    1.93    1.93    1.93    1.93    1.93

215          KK     CD4   CNAME      3R
216          KO       0       0     0.0       0      22
217          HC       3   1.914

218          KK      V1
219          KM    10'x10'RCBC under State Route 74
             * RESERVOIR STORAGE
220          KO       0       0     0.0       0      22
221          RS       1    STOR     0.0     0.0
             * Area Curve D4
222          SA     0.0    0.13    1.34    3.15    5.39    7.96   10.84   14.45   18.52   22.94
             * Elevation Curve D4
223          SE  1548.0  1550.0  1552.0  1554.0  1556.0  1558.0  1560.0  1562.0  1564.0  1566.0
             * Discharge Curve D4
224          SQ     0.0    69.3  196.01   360.1  554.41  774.81 1018.51 1256.98 1463.59 1648.78

225          KK      4R   CNAME     CD4
226          KO       0       0     0.0       0      22
227          RS       2    FLOW    -1.0     0.0
228          RC    0.07    0.05    0.07  682.24  0.0114     0.0
             * 4R
229          RX     0.0   89.81  168.15  230.76   309.1  369.18  423.89  442.89
230          RY  1561.5 1555.71 1549.35 1547.15 1546.87 1547.16  1553.3  1556.4

231          KK      D3
232          KO       0       0     0.0       1      22
233          BA   0.099
234          LG   0.276   0.144   9.819    0.07     0.0
             * S_Graph
235          UI     0.0   12.74   37.46   76.75  107.34  121.15  113.23   85.32   61.29   43.96
236          UI   31.21   22.31   15.94    11.3    8.72    4.78     3.1     3.1     3.1     3.1
237          UI     0.0
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 238          KK     CD3   CNAME      3R
 239          KO       0       0     0.0       0      22
 240          HC       2   2.013

 241          KK      3R   CNAME     CD3
 242          KO       0       0     0.0       0      22
 243          RS       4    FLOW    -1.0     0.0
 244          RC    0.07    0.05    0.07 2578.68  0.0077     0.0
              * 3R
 245          RX     0.0  132.77  231.49  328.57  385.19  472.64  536.46  624.69
 246          RY  1545.8 1537.49 1535.14 1534.99  1535.0 1537.01 1542.55 1549.07

 247          KK      D1
 248          KO       0       0     0.0       1      22
 249          BA  0.1247
 250          LG    0.25   0.211   6.394   0.246     0.0
              * S_Graph
 251          UI     0.0   25.43   98.01   173.0  202.99  168.21  108.75   69.86   44.25   28.16
 252          UI   17.78   11.85    5.22    5.22    5.22     0.0

 253          KK     CD1   CNAME     97R
 254          KO       0       0     0.0       0      22
 255          HC       3   2.166

 256          KK      1R   CNAME     CD1
 257          KO       0       0     0.0       0      22
 258          RN      1R
 259          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   31         D2
               V
               V
   36         V2
               V
               V
   43            2R
               .
               .
   49          .        D16
               .          V
               .          V
   57          .       16R
               .          .
               .          .
   63          .          .        D15
               .          .          .
               .          .          .
   69          .       CD7............
               .          V
               .          V
   72          .        7R
               .          .
               .          .
   78          .          .        D14
               .          .          .
               .          .          .
   84          .       CD6............
               .          V
               .          V
   87          .        6R
               .          .
               .          .
   93          .          .         D7
               .          .          .
               .          .          .
  100          .      CD5R............
               .          .
               .          .
  103          .          .        D13
               .          .          V
               .          .          V
  110          .          .        13R
               .          .          .
               .          .          .
  116          .          .          .         D12
               .          .          .           .
               .          .          .           .
  122          .          .      CD10............
               .          .          V
               .          .          V
  125          .          .        10R
               .          .          .
               .          .          .
```

```
131          .          .          .          D9
             .          .          .           .
             .          .          .           .
136          .          .       CD9R...........
             .          .          .
             .          .          .
139          .          .          .         D11
             .          .          .           V
             .          .          .           V
146          .          .          .         11R
             .          .          .           .
             .          .          .           .
152          .          .          .           .         D10
             .          .          .           .           .
             .          .          .           .           .
158          .          .          .        CD12...........
             .          .          .           V
             .          .          .           V
161          .          .          .         12R
             .          .          .           .
             .          .          .           .
167          .          .          .           .          D8
             .          .          .           .           .
             .          .          .           .           .
172          .          .          .        CD9L...........
             .          .          .           .
             .          .          .           .
175          .          .       CD9............
             .          .         V
             .          .         V
178          .          .         9R
             .          .          .
             .          .          .
184          .          .          .          D6
             .          .          .           .
             .          .          .           .
190          .          .       CD5L...........
             .          .          .
             .          .          .
193          .       CD5............
             .         V
             .         V
196          .        5R
             .          .
             .          .
202          .          .         D5
             .          .          .
             .          .          .
208          .          .          .          D4
             .          .          .           .
             .          .          .           .
215          .       CD4........................
             .         V
             .         V
218          .        V1
             .         V
             .         V
225          .        4R
             .          .
             .          .
231          .          .         D3
             .          .          .
             .          .          .
238          .       CD3............
             .         V
             .         V
241          .        3R
             .          .
             .          .
247          .          .         D1
             .          .          .
             .          .          .
253       CD1........................
            V
            V
256        1R
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             JUN   1998               *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   26MAY04  TIME  15:13:45  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin D - 100-Year 24-Hour Storm Event
                    April 2004

 6 IO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

 7 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          15  TIME INTERVAL IN MINUTES
                    JXDATE     28APR 4  STARTING DATE
                    JXTIME           0  STARTING TIME

19 IN          TIME DATA FOR INPUT TIME SERIES
                     JXMIN          15  TIME INTERVAL IN MINUTES
                    JXDATE     28APR 4  STARTING DATE
                    JXTIME           0  STARTING TIME

   IT          HYDROGRAPH TIME DATA
                      NMIN           5  MINUTES IN COMPUTATION INTERVAL
                     IDATE     28APR 4  STARTING DATE
                     ITIME        0000  STARTING TIME
                        NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE     28APR 4  ENDING DATE
                    NDTIME        1635  ENDING TIME
                    ICENT           19  CENTURY MARK

              COMPUTATION INTERVAL      .08 HOURS
                   TOTAL TIME BASE    16.58 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

 8 JD          INDEX STORM NO. 1
                     STRM        4.25  PRECIPITATION DEPTH
                     TRDA         .01  TRANSPOSITION DRAINAGE AREA

 9 PI            PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                  .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                  .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00

20 JD          INDEX STORM NO. 2
                     STRM        4.04  PRECIPITATION DEPTH
                     TRDA       10.00  TRANSPOSITION DRAINAGE AREA

21 PI            PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                  .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                  .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                  .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 31 KK    *        D2  *
          *            *
          **************

 32 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 33 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .03  SUBBASIN AREA

 34 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .21  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .25  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 33 UI          INPUT UNITGRAPH,   6 ORDINATES,  VOLUME =  .99
                       .0      50.5     106.5      41.8      13.0       3.5
                                                                 ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 36 KK    *        V2  *
          *            *
          **************
                         24" CMP Under State Route 74

 38 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 39 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC         .00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 40 SA              AREA          .0        .1        .5       1.1       2.0

 41 SE          ELEVATION     1556.00   1558.00   1560.00   1562.00   1564.00

 42 SQ          DISCHARGE          0.       12.       23.       26.       29.
                                                                 ***

                                              COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00       .09       .68      2.20      5.18
        ELEVATION    1556.00   1558.00   1560.00   1562.00   1564.00


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 43 KK    *                2R  *        CNAME     CD2
          *            *
          **************
```

```
 44 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 45 RS          STORAGE ROUTING
                      NSTPS          6  NUMBER OF SUBREACHES
                       ITYP       FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC      -1.00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

 46 RC          NORMAL DEPTH CHANNEL
                        ANL       .070  LEFT OVERBANK N-VALUE
                       ANCH       .050  MAIN CHANNEL N-VALUE
                        ANR       .070  RIGHT OVERBANK N-VALUE
                      RLNTH      2887.  REACH LENGTH
                        SEL      .0115  ENERGY SLOPE
                      ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 48 RY        ELEVATION   1554.60   1551.28   1550.60   1550.00   1549.79   1551.27   1552.58   1553.92
 47 RX        DISTANCE        .00    106.98    133.23    151.11    173.96    204.04    245.67    296.24

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .27       .87      1.68      2.71      4.00      5.54      7.34      9.41     11.75
          OUTFLOW        .00      3.48     19.22     48.42     97.12    164.56    253.40    374.24    519.78    691.70
        ELEVATION    1549.79   1550.04   1550.30   1550.55   1550.80   1551.06   1551.31   1551.56   1551.82   1552.07

          STORAGE      14.37     17.26     20.43     23.90     27.67     31.73     36.10     40.72     45.48     50.39
          OUTFLOW     891.53   1120.75   1379.94   1672.01   1998.56   2361.18   2761.37   3215.33   3715.22   4254.14
        ELEVATION    1552.32   1552.57   1552.83   1553.08   1553.33   1553.59   1553.84   1554.09   1554.35   1554.60


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       97. TO     4254.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 49 KK    *      D16   *
          *            *
          **************

 50 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 51 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .44  SUBBASIN AREA

 52 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .31  STARTING LOSS
                        DTH        .25  MOISTURE DEFICIT
                       PSIF       8.28  WETTING FRONT SUCTION
                      XKSAT        .09  HYDRAULIC CONDUCTIVITY
                      RTIMP       4.26  PERCENT IMPERVIOUS AREA

 51 UI          INPUT UNITGRAPH,  38 ORDINATES,  VOLUME = 1.00
                         .0      28.9      28.9      63.5     112.6     157.4     196.5     235.3     258.1     275.9
                       276.8     263.1     238.8     201.9     169.0     143.6     121.3     103.1      85.4      72.2
                        60.3      52.8      44.3      35.8      30.6      26.3      19.8      19.8      19.8       7.7
                         7.0       7.0       7.0       7.0       7.0       7.0       7.0       7.0

                                                   ***
        WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 57 KK    *       16R  *        CNAME     CD8
          *            *
          **************

 58 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 59 RS          STORAGE ROUTING
                      NSTPS           6  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 60 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       3197.  REACH LENGTH
                        SEL       .0083  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 62 RY        ELEVATION   1652.90   1650.46   1648.81   1644.26   1643.03   1645.52   1647.01   1649.23
 61 RX        DISTANCE        .00     97.17    139.71    218.92    279.08    370.79    430.96    513.83

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .85      3.40      7.52     12.76     19.07     26.51     35.09     44.81     55.63
          OUTFLOW        .00     12.79     81.20    245.76    517.09    914.19   1484.00   2189.50   3039.45   4041.54
        ELEVATION    1643.03   1643.55   1644.07   1644.59   1645.11   1645.63   1646.15   1646.67   1647.19   1647.71

          STORAGE      67.54     80.52     94.66    109.63    125.10    141.16    157.99    175.61    194.02    213.22
          OUTFLOW    5202.08   6528.39   8176.45  10103.19  12221.00  14525.19  17023.19  19719.95  22618.48  25722.07
        ELEVATION    1648.23   1648.74   1649.26   1649.78   1650.30   1650.82   1651.34   1651.86   1652.38   1652.90


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      246. TO    25722.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 63 KK    *       D15  *
          *            *
          **************

 64 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 65 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .15  SUBBASIN AREA

 66 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .22  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .24  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA
```

```
 65 UI          INPUT UNITGRAPH,  19 ORDINATES,  VOLUME = 1.00
                      .0      20.2      61.0     123.1     171.8     192.8     176.4     130.6      93.5      66.7
                    47.0      34.2      23.6      16.5      13.8       5.7       4.9       4.9       4.9
                                                                   ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 69 KK      *       CD7  *        CNAME      7R
            *            *
            **************

 70 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

 71 HC          HYDROGRAPH COMBINATION
                     ICOMP          .2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                   ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 72 KK      *        7R  *        CNAME      CD7
            *            *
            **************

 73 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 74 RS          STORAGE ROUTING
                     NSTPS           4  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 75 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       1675.  REACH LENGTH
                       SEL       .0118  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 77 RY        ELEVATION   1620.20   1615.38   1612.18   1610.32   1610.17   1611.02   1613.33   1615.56
 76 RX        DISTANCE        .00     89.54    134.31    164.73    203.64    243.00    294.86    334.22
                                                                   ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .97      2.70      4.89      7.49     10.50     13.89     17.65     21.75     26.18
          OUTFLOW        .00     41.57    186.20    447.37    823.02   1345.68   1991.77   2769.32   3675.82   4714.57
        ELEVATION    1610.17   1610.70   1611.23   1611.75   1612.28   1612.81   1613.34   1613.86   1614.39   1614.92

          STORAGE      30.96     36.05     41.34     46.82     52.51     58.40     64.48     70.77     77.25     83.93
          OUTFLOW    5888.08   7244.74   8757.88  10413.74  12212.27  14153.80  16238.95  18468.55  20843.59  23365.18
        ELEVATION    1615.45   1615.98   1616.50   1617.03   1617.56   1618.09   1618.62   1619.14   1619.67   1620.20

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       42. TO    23365.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
 78 KK        *       D14  *
              *            *
              **************

 79 KO            OUTPUT CONTROL VARIABLES
                        IPRNT           4  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                         IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .083  TIME INTERVAL IN HOURS

                SUBBASIN RUNOFF DATA

 80 BA            SUBBASIN CHARACTERISTICS
                        TAREA         .11  SUBBASIN AREA

 81 LG            GREEN AND AMPT LOSS RATE
                        STRTL         .34  STARTING LOSS
                          DTH         .36  MOISTURE DEFICIT
                         PSIF        6.40  WETTING FRONT SUCTION
                        XKSAT         .17  HYDRAULIC CONDUCTIVITY
                        RTIMP         .00  PERCENT IMPERVIOUS AREA

 80 UI            INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                          .0      17.9      70.9     128.1     158.6     145.8     100.6      66.6      43.8      29.0
                        19.1      11.9       7.6       4.1       4.1       4.1

                                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
 84 KK        *       CD6  *        CNAME      6R
              *            *
              **************

 85 KO            OUTPUT CONTROL VARIABLES
                        IPRNT           4  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .083  TIME INTERVAL IN HOURS

 86 HC            HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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              *            *
 87 KK        *        6R  *        CNAME     CD6
              *            *
              **************

 88 KO            OUTPUT CONTROL VARIABLES
                        IPRNT           4  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .083  TIME INTERVAL IN HOURS

                HYDROGRAPH ROUTING DATA

 89 RS            STORAGE ROUTING
                        NSTPS           6  NUMBER OF SUBREACHES
```

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                    ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                       X         .00  WORKING R AND D COEFFICIENT

 90 RC          NORMAL DEPTH CHANNEL
                     ANL        .070  LEFT OVERBANK N-VALUE
                    ANCH        .050  MAIN CHANNEL N-VALUE
                     ANR        .070  RIGHT OVERBANK N-VALUE
                   RLNTH       3082.  REACH LENGTH
                     SEL       .0110  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 92 RY        ELEVATION   1598.10   1592.96   1590.67   1587.80   1586.67   1587.85   1591.63   1595.16
 91 RX        DISTANCE        .00     98.25    141.25    183.25    239.25    288.25    372.25    435.64

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.17      4.66      9.66     15.62     22.51     30.35     39.14     48.95     59.79
          OUTFLOW        .00     23.12    149.63    458.50    916.86   1527.82   2297.80   3272.23   4499.97   5932.62
        ELEVATION    1586.67   1587.27   1587.87   1588.47   1589.08   1589.68   1590.28   1590.88   1591.48   1592.08

          STORAGE      71.57     84.29     97.95    112.57    128.14    144.47    161.30    178.61    196.42    214.71
          OUTFLOW    7570.39   9416.89  11478.91  13763.33  16276.85  19160.31  22297.58  25670.79  29279.82  33124.92
        ELEVATION    1592.69   1593.29   1593.89   1594.49   1595.09   1595.69   1596.30   1596.90   1597.50   1598.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      150. TO    33125.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


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            *            *
 93 KK      *        D7  *
            *            *
            **************

 94 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 95 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .18  SUBBASIN AREA

 96 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .33  STARTING LOSS
                       DTH         .35  MOISTURE DEFICIT
                      PSIF        6.40  WETTING FRONT SUCTION
                     XKSAT         .17  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 95 UI          INPUT UNITGRAPH,  23 ORDINATES,  VOLUME = 1.00
                        .0      20.2      45.3     101.3     149.0     182.6     193.4     177.4     137.7     103.6
                      78.5      58.6      42.5      33.6      24.0      18.3      13.9      10.6       4.9       4.9
                       4.9       4.9       4.9

                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
100 KK      *      CD5R  *        CNAME      4R
            *            *
            **************

101 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
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                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

102 HC          HYDROGRAPH COMBINATION
                    ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
103 KK      *       D13  *
            *            *
            **************

104 KO          OUTPUT CONTROL VARIABLES
                   IPRNT           4  PRINT CONTROL
                   IPLOT           0  PLOT CONTROL
                   QSCAL          0.  HYDROGRAPH PLOT SCALE
                   IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                    IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

105 BA          SUBBASIN CHARACTERISTICS
                   TAREA         .21  SUBBASIN AREA

106 LG          GREEN AND AMPT LOSS RATE
                   STRTL         .25  STARTING LOSS
                     DTH         .15  MOISTURE DEFICIT
                    PSIF        8.52  WETTING FRONT SUCTION
                   XKSAT         .11  HYDRAULIC CONDUCTIVITY
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

105 UI          INPUT UNITGRAPH,  24 ORDINATES,  VOLUME = 1.00
                     .0      21.8      44.3     103.7     153.0     190.7     208.5     198.2     163.5     122.9
                    94.1      71.4      53.8      41.2      31.9      23.1      16.8      14.9       8.9       5.3
                     5.3       5.3       5.3       5.3

                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
110 KK      *       13R  *        CNAME    CD11
            *            *
            **************

111 KO          OUTPUT CONTROL VARIABLES
                   IPRNT           4  PRINT CONTROL
                   IPLOT           0  PLOT CONTROL
                   QSCAL          0.  HYDROGRAPH PLOT SCALE
                   IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                    IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

112 RS          STORAGE ROUTING
                  NSTPS           5  NUMBER OF SUBREACHES
                   ITYP        FLOW  TYPE OF INITIAL CONDITION
                 RSVRIC       -1.00  INITIAL CONDITION
                      X         .00 WORKING R AND D COEFFICIENT

113 RC          NORMAL DEPTH CHANNEL
                    ANL        .070  LEFT OVERBANK N-VALUE
                   ANCH        .050  MAIN CHANNEL N-VALUE
                    ANR        .070  RIGHT OVERBANK N-VALUE
                  RLNTH       2427.  REACH LENGTH
                    SEL       .0099  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                     CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
115 RY        ELEVATION   1620.00   1616.54   1615.21   1614.78   1614.92   1618.02   1619.81   1620.13
114 RX        DISTANCE        .00    169.81    274.12    350.15    420.86    520.26    596.29    646.83
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COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	1.24	3.62	6.54	9.95	13.85	18.24	23.08	28.28	33.84
OUTFLOW	.00	20.94	103.73	252.02	459.35	726.95	1057.02	1456.10	1921.83	2453.94
ELEVATION	1614.78	1615.06	1615.34	1615.62	1615.91	1616.19	1616.47	1616.75	1617.03	1617.31
STORAGE	39.76	46.03	52.68	59.72	67.16	75.01	83.26	91.92	100.99	110.76
OUTFLOW	3053.98	3723.68	4505.22	5404.59	6384.26	7446.45	8593.21	9826.51	11143.33	12581.12
ELEVATION	1617.60	1617.88	1618.16	1618.44	1618.72	1619.00	1619.29	1619.57	1619.85	1620.13

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 252. TO 12581.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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              **************
              *            *
 116 KK       *       D12  *
              *            *
              **************

 117 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

                SUBBASIN RUNOFF DATA

 118 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .11  SUBBASIN AREA

 119 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .25  STARTING LOSS
                        DTH        .21  MOISTURE DEFICIT
                       PSIF       6.40  WETTING FRONT SUCTION
                      XKSAT        .25  HYDRAULIC CONDUCTIVITY
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

 118 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                        .0      20.9      81.3     145.9     176.6     154.8     104.1      67.9      43.4      29.2
                      18.1      12.8       5.6       4.5       4.5
```

***

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              **************
              *            *
 122 KK       *      CD10  *        CNAME    10R
              *            *
              **************

 123 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

 124 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
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              **************
              *            *
 125 KK       *       10R  *        CNAME    CD10
              *            *
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              **************

126 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

127 RS          STORAGE ROUTING
                      NSTPS           3  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

128 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1159.  REACH LENGTH
                        SEL       .0132  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
130 RY        ELEVATION   1595.70   1593.12   1591.43   1590.98   1590.27   1593.57   1595.63   1597.25
129 RX        DISTANCE        .00     71.00     98.00    130.00    173.00    227.23    259.62    292.62

                                                   ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .14       .55      1.27      2.22      3.30      4.49      5.80      7.22      8.79
          OUTFLOW        .00      5.74     36.37    107.21    251.58    454.43    711.67   1023.98   1391.45   1816.18
        ELEVATION    1590.27   1590.64   1591.00   1591.37   1591.74   1592.11   1592.47   1592.84   1593.21   1593.58

          STORAGE      10.52     12.41     14.44     16.64     18.99     21.49     24.09     26.77     29.52     32.34
          OUTFLOW    2359.35   2973.05   3659.85   4422.18   5262.40   6191.94   7238.84   8367.46   9577.28  10868.01
        ELEVATION    1593.94   1594.31   1594.68   1595.05   1595.41   1595.78   1596.15   1596.51   1596.88   1597.25


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       36. TO    10868.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
131 KK        *        D9  *
              *            *
              **************

132 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

133 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .03  SUBBASIN AREA

134 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .27  STARTING LOSS
                        DTH         .24  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .23  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

133 UI          INPUT UNITGRAPH,   9 ORDINATES,  VOLUME = 1.00
                        .0      20.1      67.1      63.3      30.0      13.4       6.3       2.0       2.0

                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
 136 KK       *      CD9R  *        CNAME      5R
              *            *
              **************

 137 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

 138 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
 139 KK       *       D11  *
              *            *
              **************

 140 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

                SUBBASIN RUNOFF DATA

 141 BA          SUBBASIN CHARACTERISTICS
                       TAREA         .27  SUBBASIN AREA

 142 LG          GREEN AND AMPT LOSS RATE
                       STRTL         .25  STARTING LOSS
                         DTH         .07  MOISTURE DEFICIT
                        PSIF       11.96  WETTING FRONT SUCTION
                       XKSAT         .03  HYDRAULIC CONDUCTIVITY
                       RTIMP         .00  PERCENT IMPERVIOUS AREA

 141 UI          INPUT UNITGRAPH,  30 ORDINATES,  VOLUME = 1.00
                          .0      23.3      31.0      81.4     128.1     169.2     203.4     219.7     220.9     204.8
                       168.7     134.3     109.0      87.6      69.3      55.7      45.0      36.5      27.9      24.7
                        16.0      15.9      12.6       5.7       5.7       5.7       5.7       5.7       5.7       5.7

                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
 146 KK       *       11R  *        CNAME    CD13
              *            *
              **************

 147 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

                HYDROGRAPH ROUTING DATA

 148 RS          STORAGE ROUTING
                       NSTPS           5  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
```

```
                        X          .00 WORKING R AND D COEFFICIENT

149 RC          NORMAL DEPTH CHANNEL
                       ANL         .070  LEFT OVERBANK N-VALUE
                      ANCH         .050  MAIN CHANNEL N-VALUE
                       ANR         .070  RIGHT OVERBANK N-VALUE
                     RLNTH        2567.  REACH LENGTH
                       SEL        .0107  ENERGY SLOPE
                     ELMAX           .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
151 RY        ELEVATION   1615.90   1614.41   1613.06   1611.21   1609.81   1611.09   1613.05   1614.92
150 RX        DISTANCE        .00     95.72    136.73    179.78    242.78    284.97    362.96    459.22

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .24       .94      2.12      3.78      5.90      8.41     11.30     14.57     18.23
          OUTFLOW        .00      3.64     23.13     68.19    146.94    281.04    461.89    689.17    965.66   1294.22
        ELEVATION    1609.81   1610.13   1610.45   1610.77   1611.09   1611.41   1611.73   1612.05   1612.37   1612.70

          STORAGE      22.27     26.73     31.69     37.14     43.09     49.58     56.76     64.46     72.56     81.04
          OUTFLOW    1677.76   2161.78   2719.65   3348.60   4052.16   4829.69   5695.62   6713.10   7823.19   9027.24
        ELEVATION    1613.02   1613.34   1613.66   1613.98   1614.30   1614.62   1614.94   1615.26   1615.58   1615.90

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      147. TO     9027.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
152 KK      *       D10  *
            *            *
            **************

153 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

154 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .11  SUBBASIN AREA

155 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .14  MOISTURE DEFICIT
                       PSIF        9.85  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

154 UI          INPUT UNITGRAPH,  18 ORDINATES,  VOLUME = 1.00
                        .0      15.4      53.2     103.0     138.3     145.0     120.9      83.4      58.1      40.1
                      27.8      19.2      13.0      10.6       3.9       3.8       3.8       3.8

                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
158 KK      *      CD12  *        CNAME      7R
            *            *
            **************

159 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS
```

```
160 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
161 KK      *       12R  *        CNAME    CD12
            *            *
            **************

162 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

163 RS          STORAGE ROUTING
                     NSTPS           2  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

164 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH        716.  REACH LENGTH
                       SEL       .0144  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
166 RY        ELEVATION   1595.30   1593.21   1591.17   1590.50   1588.73   1592.97   1594.55   1595.49
165 RX        DISTANCE        .00     76.32    139.39    168.25    213.85    248.85    270.99    300.69
                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .04       .14       .32       .57       .88      1.29      1.81      2.41      3.10
          OUTFLOW        .00      2.43     15.44     45.54     98.07    177.50    280.35    432.90    669.36    954.64
        ELEVATION    1588.73   1589.09   1589.44   1589.80   1590.15   1590.51   1590.86   1591.22   1591.58   1591.93

          STORAGE       3.87      4.72      5.65      6.67      7.79      9.02     10.36     11.81     13.39     15.11
          OUTFLOW    1291.19   1681.35   2130.43   2670.83   3275.30   3949.64   4697.13   5517.47   6419.85   7447.97
        ELEVATION    1592.29   1592.64   1593.00   1593.36   1593.71   1594.07   1594.42   1594.78   1595.14   1595.49

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       15. TO     7448.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
167 KK      *        D8  *
            *            *
            **************

168 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

169 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .02  SUBBASIN AREA
```

```
170 LG          GREEN AND AMPT LOSS RATE
                      STRTL          .25  STARTING LOSS
                        DTH          .15  MOISTURE DEFICIT
                       PSIF         8.54  WETTING FRONT SUCTION
                      XKSAT          .11  HYDRAULIC CONDUCTIVITY
                      RTIMP          .00  PERCENT IMPERVIOUS AREA

169 UI          INPUT UNITGRAPH,   8 ORDINATES,  VOLUME = 1.00
                       .0      15.8      51.7      46.1      21.1       9.3       4.1       1.5
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
172 KK      *      CD9L  *        CNAME      5R
            *            *
            **************

173 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            4  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                       IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT         .083  TIME INTERVAL IN HOURS

174 HC          HYDROGRAPH COMBINATION
                      ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
175 KK      *       CD9  *        CNAME      5R
            *            *
            **************

176 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            4  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                       IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT         .083  TIME INTERVAL IN HOURS

177 HC          HYDROGRAPH COMBINATION
                      ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
178 KK      *        9R  *        CNAME     CD9
            *            *
            **************

179 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            4  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                       IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT         .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

180 RS          STORAGE ROUTING
                     NSTPS            2  NUMBER OF SUBREACHES
                      ITYP         FLOW  TYPE OF INITIAL CONDITION
```

```
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

181 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       1594.  REACH LENGTH
                       SEL       .0100  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
183 RY        ELEVATION   1587.50   1585.15   1581.42   1578.34   1576.66   1576.30   1580.27   1584.99
182 RX        DISTANCE        .00     44.72    101.29    125.14    181.76    233.61    299.38    378.69

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .91      2.73      5.18      8.23     11.62     15.32     19.32     23.64     28.28
          OUTFLOW        .00     36.76    178.45    432.90    842.08   1407.94   2107.03   2940.11   3909.17   5045.63
        ELEVATION    1576.30   1576.89   1577.48   1578.07   1578.66   1579.25   1579.84   1580.43   1581.02   1581.61

          STORAGE      33.30     38.72     44.55     50.79     57.44     64.48     71.80     79.36     87.17     95.21
          OUTFLOW    6393.19   7901.19   9575.97  11423.34  13448.88  15699.69  18249.75  20990.14  23921.59  27045.07
        ELEVATION    1582.19   1582.78   1583.37   1583.96   1584.55   1585.14   1585.73   1586.32   1586.91   1587.50

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      842. TO    27045.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
184 KK    *        D6  *
          *            *
          **************

185 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

186 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .04  SUBBASIN AREA

187 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .17  MOISTURE DEFICIT
                       PSIF        6.82  WETTING FRONT SUCTION
                      XKSAT         .21  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

186 UI          INPUT UNITGRAPH,  10 ORDINATES,  VOLUME = 1.00
                        .0      21.3      77.6      98.0      60.4      30.8      15.7       8.2       3.1       2.6

                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
190 KK    *      CD5L  *        CNAME      4R
          *            *
          **************

191 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS
```

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192 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
193 KK      *       CD5  *        CNAME      4R
            *            *
            **************

194 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

195 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
196 KK      *        5R  *        CNAME      CD5
            *            *
            **************

197 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

198 RS          STORAGE ROUTING
                      NSTPS           3  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

199 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2500.  REACH LENGTH
                        SEL       .0057  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
201 RY        ELEVATION   1577.40   1570.09   1566.58   1562.23   1559.51   1566.90   1576.41   1578.03
200 RX        DISTANCE        .00    144.52    215.99    290.72    437.61    509.48    632.04    670.06
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.74      6.95     15.59     26.33     38.54     52.21     67.35     84.02    102.47
          OUTFLOW        .00     42.16    267.68    807.33   1764.32   3071.40   4742.17   6794.58   9538.04  12909.51
        ELEVATION    1559.51   1560.48   1561.46   1562.43   1563.41   1564.38   1565.36   1566.33   1567.31   1568.28

          STORAGE     122.73    144.81    168.68    194.32    221.75    250.96    281.95    314.73    349.41    386.18
          OUTFLOW   16761.19  21110.97  25975.59  31368.56  37304.78  43799.06  50866.14  58520.71  66689.70  75692.70
        ELEVATION    1569.26   1570.23   1571.21   1572.18   1573.16   1574.13   1575.11   1576.08   1577.06   1578.03

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     1764. TO     75693.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)
```

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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
202 KK      *        D5  *
            *            *
            **************

203 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

204 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .16  SUBBASIN AREA

205 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .26  STARTING LOSS
                        DTH         .22  MOISTURE DEFICIT
                       PSIF        6.54  WETTING FRONT SUCTION
                      XKSAT         .22  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

204 UI          INPUT UNITGRAPH,  17 ORDINATES,  VOLUME = 1.00
                        .0      23.7      93.6     172.1     220.5     215.7     157.5     106.5      71.7      47.6
                      31.9      21.2      16.3       6.2       5.8       5.8       5.8
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
208 KK      *        D4  *
            *            *
            **************

209 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

210 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .09  SUBBASIN AREA

211 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .10  MOISTURE DEFICIT
                       PSIF       11.25  WETTING FRONT SUCTION
                      XKSAT         .04  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

210 UI          INPUT UNITGRAPH,  28 ORDINATES,  VOLUME = 1.00
                        .0       7.9      12.4      30.6      47.6      61.9      72.0      76.1      72.8      61.9
                      49.2      38.8      30.8      24.1      19.0      15.1      12.2       8.7       7.5       5.4
                       5.4       2.5       1.9       1.9       1.9       1.9       1.9       1.9
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
215 KK      *       CD4  *        CNAME      3R
            *            *
            **************

216 KO          OUTPUT CONTROL VARIABLES
```

```
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

217 HC          HYDROGRAPH COMBINATION
                    ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
218 KK    *        V1  *
          *            *
          **************
                         10'x10'RCBC under State Route 74

220 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

221 RS          STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       STOR  TYPE OF INITIAL CONDITION
                   RSVRIC        .00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

222 SA              AREA         .0        .1       1.3       3.2       5.4       8.0      10.8      14.4      18.5      22.9

223 SE          ELEVATION     1548.00   1550.00   1552.00   1554.00   1556.00   1558.00   1560.00   1562.00   1564.00   1566.00

224 SQ          DISCHARGE          0.       69.      196.      360.      554.      775.     1019.     1257.     1464.     1649.

                                                    ***

                                          COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00       .09      1.34      5.71     14.15     27.42     46.14     71.34    104.23    145.61
        ELEVATION    1548.00   1550.00   1552.00   1554.00   1556.00   1558.00   1560.00   1562.00   1564.00   1566.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO       69.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
225 KK    *        4R  *        CNAME     CD4
          *            *
          **************

226 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

227 RS          STORAGE ROUTING
                    NSTPS          2  NUMBER OF SUBREACHES
```

```
                    ITYP        FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC       -1.00  INITIAL CONDITION
                       X         .00 WORKING R AND D COEFFICIENT

228 RC          NORMAL DEPTH CHANNEL
                     ANL        .070  LEFT OVERBANK N-VALUE
                    ANCH        .050  MAIN CHANNEL N-VALUE
                     ANR        .070  RIGHT OVERBANK N-VALUE
                   RLNTH        682.  REACH LENGTH
                     SEL       .0114  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
230 RY        ELEVATION   1561.50   1555.71   1549.35   1547.15   1546.87   1547.16   1553.30   1556.40
229 RX        DISTANCE        .00     89.81    168.15    230.76    309.10    369.18    423.89    442.89

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.43      3.49      5.90      8.61     11.53     14.64     17.94     21.44     25.14
          OUTFLOW        .00    203.68    804.93   1747.81   3148.94   4939.13   7079.68   9566.84  12399.71  15591.85
        ELEVATION    1546.87   1547.64   1548.41   1549.18   1549.95   1550.72   1551.49   1552.26   1553.03   1553.80

          STORAGE      29.01     33.05     37.26     41.66     46.21     50.91     55.74     60.72     65.85     71.12
          OUTFLOW   19135.38  23023.64  27246.00  31876.56  36905.89  42295.21  48045.26  54157.32  60633.03  67474.52
        ELEVATION    1554.57   1555.34   1556.11   1556.88   1557.65   1558.42   1559.19   1559.96   1560.73   1561.50

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      204. TO    67475.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
231 KK    *        D3  *
          *            *
          **************

232 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

233 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .10  SUBBASIN AREA

234 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .28  STARTING LOSS
                       DTH         .14  MOISTURE DEFICIT
                      PSIF        9.82  WETTING FRONT SUCTION
                     XKSAT         .07  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

233 UI          INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                       .0      12.7      37.5      76.8     107.3     121.2     113.2      85.3      61.3      44.0
                     31.2      22.3      15.9      11.3       8.7       4.8       3.1       3.1       3.1       3.1

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
238 KK    *       CD3  *        CNAME      3R
          *            *
          **************

239 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
```

```
                    TIMINT        .083  TIME INTERVAL IN HOURS

240 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
241 KK      *        3R  *        CNAME     CD3
            *            *
            **************

242 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

243 RS          STORAGE ROUTING
                     NSTPS           4  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

244 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       2579.  REACH LENGTH
                       SEL       .0077  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
246 RY        ELEVATION   1545.80   1537.49   1535.14   1534.99   1535.00   1537.01   1542.55   1549.07
245 RX        DISTANCE        .00    132.77    231.49    328.57    385.19    472.64    536.46    624.69

                                                    ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      7.42     18.04     31.39     46.60     62.76     79.82     97.76    116.61    136.34
          OUTFLOW        .00    234.19    854.85   1889.46   3443.70   5406.11   7749.38  10465.46  13550.44  17002.98
        ELEVATION    1534.99   1535.73   1536.47   1537.21   1537.95   1538.70   1539.44   1540.18   1540.92   1541.66

          STORAGE     156.97    178.52    201.02    224.48    248.91    274.24    300.11    326.42    353.16    380.35
          OUTFLOW   20823.45  25006.29  29562.40  34497.86  39817.12  45660.54  52088.50  58905.78  66109.23  73696.52
        ELEVATION    1542.40   1543.14   1543.88   1544.62   1545.37   1546.11   1546.85   1547.59   1548.33   1549.07

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      855. TO    73697.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
247 KK      *        D1  *
            *            *
            **************

248 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

249 BA          SUBBASIN CHARACTERISTICS
```

```
                    TAREA          .12  SUBBASIN AREA

 250 LG         GREEN AND AMPT LOSS RATE
                    STRTL          .25  STARTING LOSS
                      DTH          .21  MOISTURE DEFICIT
                     PSIF         6.39  WETTING FRONT SUCTION
                    XKSAT          .25  HYDRAULIC CONDUCTIVITY
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

 249 UI         INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                      .0      25.4      98.0     173.0     203.0     168.2     108.8      69.9      44.3      28.2
                    17.8      11.9       5.2       5.2       5.2
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 253 KK     *       CD1  *        CNAME     97R
            *            *
            **************

 254 KO         OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

 255 HC         HYDROGRAPH COMBINATION
                    ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 256 KK     *        1R  *        CNAME     CD1
            *            *
            **************

 257 KO         OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 258 RN         NO ROUTING
                                                                  ***
1
                                          RUNOFF SUMMARY
                                     FLOW IN CUBIC FEET PER SECOND
                                   TIME IN HOURS,  AREA IN SQUARE MILES

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

        HYDROGRAPH AT
+                          D2       80.   12.08         5.          2.          2.        .03

        ROUTED TO
+                          V2       24.   12.25         5.          2.          2.        .03

        ROUTED TO
+                          2R       24.   12.75         5.          2.          2.        .03

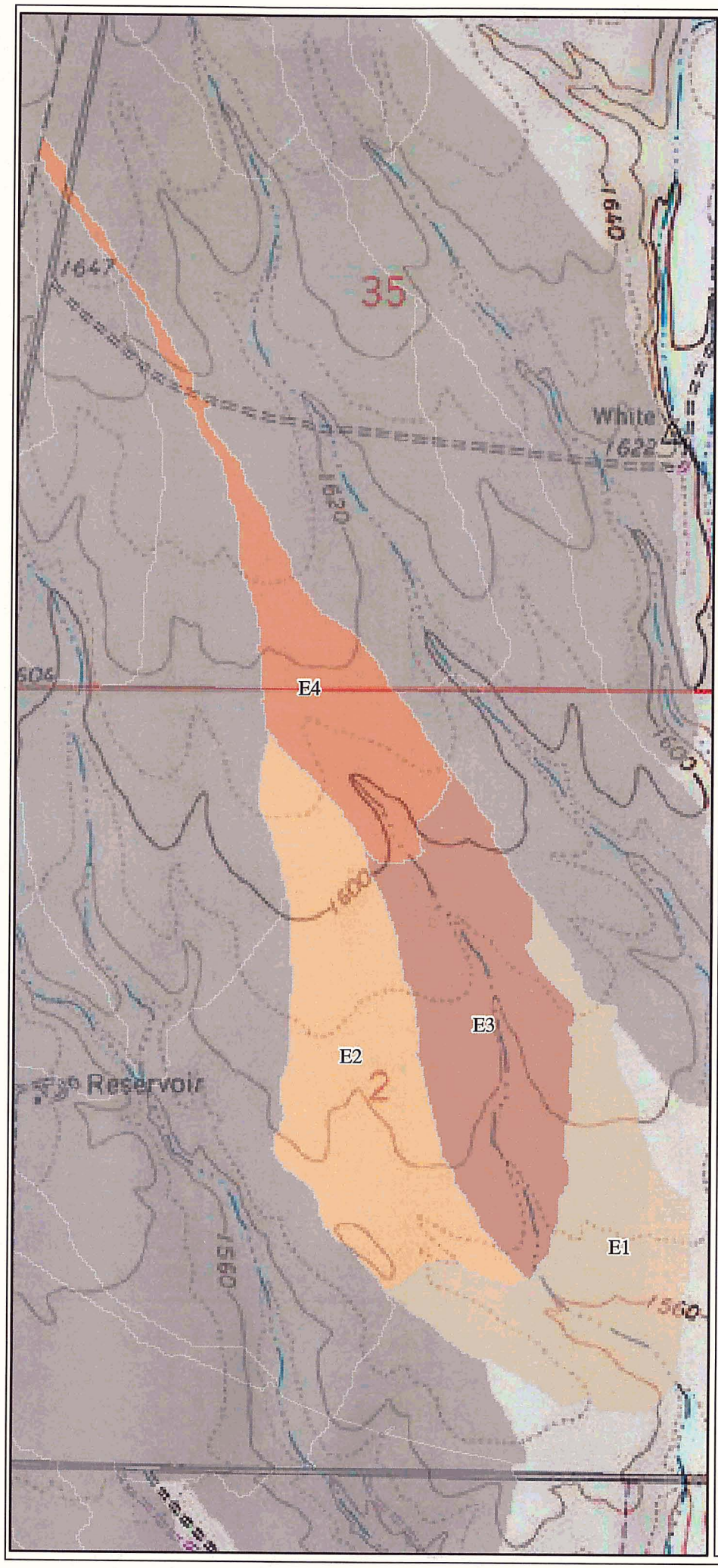
        HYDROGRAPH AT
+                         D16      469.   12.67        97.         36.         36.        .44

        ROUTED TO
+                         16R      458.   12.92        97.         36.         36.        .44
```

+	HYDROGRAPH AT	D15	249.	12.33	27.	10.	10.	.15
+	2 COMBINED AT	CD7	501.	12.83	123.	45.	45.	.60
+	ROUTED TO	7R	500.	12.92	123.	45.	45.	.60
+	HYDROGRAPH AT	D14	196.	12.25	19.	7.	7.	.11
+	2 COMBINED AT	CD6	518.	12.83	141.	51.	51.	.70
+	ROUTED TO	6R	514.	13.00	140.	51.	51.	.70
+	HYDROGRAPH AT	D7	261.	12.42	32.	12.	12.	.18
+	2 COMBINED AT	CD5R	638.	12.58	171.	62.	62.	.88
+	HYDROGRAPH AT	D13	316.	12.42	46.	17.	17.	.21
+	ROUTED TO	13R	300.	12.58	46.	17.	17.	.21
+	HYDROGRAPH AT	D12	213.	12.25	19.	7.	7.	.11
+	2 COMBINED AT	CD10	373.	12.50	65.	23.	23.	.32
+	ROUTED TO	10R	373.	12.58	65.	23.	23.	.32
+	HYDROGRAPH AT	D9	66.	12.17	5.	2.	2.	.03
+	2 COMBINED AT	CD9R	376.	12.58	69.	25.	25.	.34
+	HYDROGRAPH AT	D11	392.	12.50	86.	32.	32.	.27
+	ROUTED TO	11R	384.	12.67	86.	32.	32.	.27
+	HYDROGRAPH AT	D10	206.	12.33	27.	10.	10.	.11
+	2 COMBINED AT	CD12	480.	12.58	112.	41.	41.	.38
+	ROUTED TO	12R	480.	12.58	112.	41.	41.	.38
+	HYDROGRAPH AT	D8	52.	12.17	4.	2.	2.	.02
+	2 COMBINED AT	CD9L	485.	12.58	117.	43.	43.	.40
+	2 COMBINED AT	CD9	855.	12.58	185.	67.	67.	.75
+	ROUTED TO	9R	848.	12.67	185.	67.	67.	.75
+	HYDROGRAPH AT	D6	102.	12.17	8.	3.	3.	.04
+	2 COMBINED AT	CD5L	855.	12.67	192.	70.	70.	.79
+	2 COMBINED AT	CD5	1472.	12.58	360.	131.	131.	1.67
+	ROUTED TO	5R	1451.	12.75	358.	130.	130.	1.67
+	HYDROGRAPH AT	D5	280.	12.25	27.	10.	10.	.16
+	HYDROGRAPH AT	D4	130.	12.50	26.	9.	9.	.09
+	3 COMBINED AT	CD4	1604.	12.67	409.	149.	149.	1.91

	ROUTED TO							
+		V1	1057.	13.33	409.	149.	149.	1.91
	ROUTED TO							
+		4R	1058.	13.33	409.	148.	148.	1.91
	HYDROGRAPH AT							
+		D3	179.	12.33	25.	9.	9.	.10
	2 COMBINED AT							
+		CD3	1075.	13.33	433.	157.	157.	2.01
	ROUTED TO							
+		3R	1073.	13.42	430.	156.	156.	2.01
	HYDROGRAPH AT							
+		D1	240.	12.25	22.	8.	8.	.12
	3 COMBINED AT							
+		CD1	1087.	13.42	455.	165.	165.	2.17
	ROUTED TO							
+		1R	1087.	13.42	455.	165.	165.	2.17

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



New River West FDS
Appendix D.6.E
Basin E

LEGEND

- Project Boundary
- All Other Basins

Basin E Sub-basin IDs

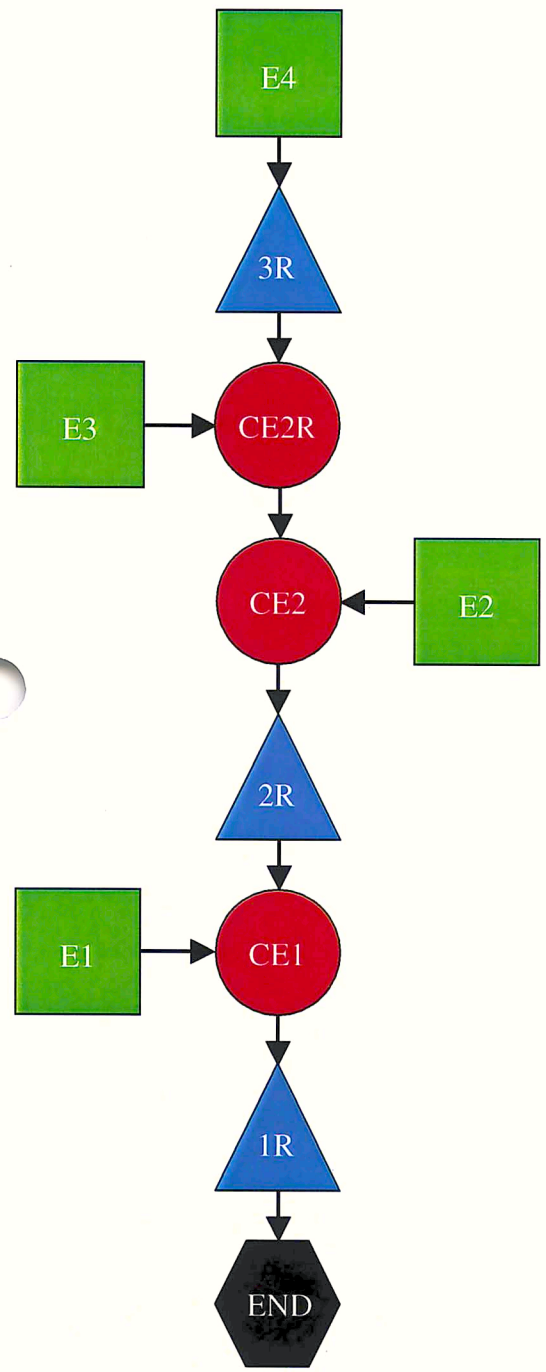
- E1
- E2
- E3
- E4

N

0 250 500 1,000
Feet
Scale: 1" = 1,000'

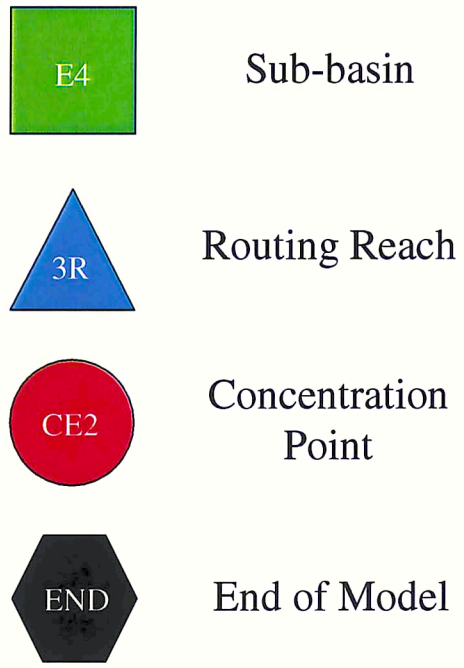
Horizontal Datum:	Data Sources:	Date: 06.09.04
NAD83 State Plane	USGS 7.5':	MCFCD Proj. No: FCD 2003-C057
AZ Central	Biscuit Flat	Proj. No: 23443706
Vertical Datum:	MCCFCD	PM: M.R.
NGVD 29		Checked By: M.M.
		Cartography: D.G.

P:\New_River_FDS\GIS\mxds\basins\nr_basinE.mxd



Basin E

HEC-1 Model Schematic



Basin E

100 – Year
6 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*            JUN   1998             *
*          VERSION 4.1              *
*                                   *
* RUN DATE   29APR04  TIME  19:49:50 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 756-1104           *
*                                   *
*************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin E - 100-Year 6-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   3.329    0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 11           PC   0.962   0.972   0.983   0.991     1.0
 12           IN      15 28APR04       0
 13           JD   3.309     0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 16           PC   0.962   0.972   0.983   0.991     1.0
 17           IN      15 28APR04       0
 18           JD   3.286     1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 20           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 21           PC  0.9572  0.9684  0.9798  0.9898     1.0
 22           IN      15 28APR04       0
 23           JD   3.196     5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 25           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 26           PC  0.9487   0.962  0.9743  0.9877     1.0

 27           KK      E4
 28           KO       0       0     0.0       1      22
 29           BA  0.0653
 30           LG    0.35    0.38     6.4   0.152     0.0
              * S_Graph
 31           UI     0.0    8.66    26.9   53.53   74.66   82.83   74.29   54.38   38.69   27.35
 32           UI   19.11   14.21    9.46    6.48    5.46    2.11    2.11    2.11    2.11     0.0

 33           KK      3R   CNAME     CE3
 34           KO       0       0     0.0       0      22
 35           RS       6    FLOW    -1.0     0.0
 36           RC    0.07    0.05    0.07 3149.05  0.0099     0.0
              * 3R
 37           RX     0.0  126.12   197.9  233.63  269.37  361.16  432.63   489.9
 38           RY  1590.7 1589.77 1589.14 1588.02 1587.59 1590.78 1590.87 1592.18

 39           KK      E3
 40           KO       0       0     0.0       1      22
 41           BA   0.095
 42           LG    0.35    0.38     6.4   0.152     0.0
              * S_Graph
 43           UI     0.0   13.51   47.18   90.84  121.58  126.87  104.55   72.04   50.03   34.53
 44           UI   23.76   16.37   11.01    8.89    3.29    3.29    3.29    3.29     0.0
```

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

 45           KK    CE2R   CNAME      2R
 46           KO       0       0     0.0       0      22
 47           HC       2   0.160

 48           KK      E2
 49           KO       0       0     0.0       1      22
 50           BA   0.105
 51           LG    0.35    0.38     6.4   0.152     0.0
              * S_Graph
 52           UI     0.0   13.03   35.66    75.8  106.62  123.01  119.26    94.6   68.27   49.78
 53           UI    35.7   26.14   18.92   13.81    8.92     7.9    3.17    3.17    3.17    3.17
 54           UI     0.0

 55           KK     CE2   CNAME      2R
 56           KO       0       0     0.0       0      22
 57           HC       2   0.265

 58           KK      2R   CNAME     CE2
 59           KO       0       0     0.0       0      22
 60           RS       3    FLOW    -1.0     0.0
 61           RC    0.07    0.05    0.07 1472.58  0.0085     0.0
              * 2R
 62           RX     0.0   119.0   162.0  243.15  286.15  353.15  401.15  444.15
 63           RY  1561.8  1561.0 1560.03 1559.54 1559.35 1560.27 1561.89 1563.27

 64           KK      E1
 65           KO       0       0     0.0       1      22
 66           BA   0.093
 67           LG    0.35    0.38     6.4   0.152     0.0
              * S_Graph
 68           UI     0.0   21.06   80.62  139.49   157.4   120.9   75.89   47.45    30.0   18.85
 69           UI   11.44     5.8    4.07    4.07     0.0

 70           KK     CE1   CNAME      1R
 71           KO       0       0     0.0       0      22
 72           HC       2   0.358

 73           KK      1R   CNAME     CE1
 74           KO       0       0     0.0       0      22
 75           RN      1R
 76           ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   27          E4
                V
                V
   33          3R
                .
                .
   39           .          E3
                .           .
                .           .
   45        CE2R............
                .
                .
   48           .          E2
                .           .
                .           .
   55        CE2............
                V
                V
   58          2R
                .
                .
   64           .          E1
                .           -
                .           .
   70        CE1............
                V
                V
   73          1R

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   29APR04  TIME  19:49:50  *
 *                                      *
 ****************************************

                                                  ****************************************
                                                  *                                      *
                                                  *    U.S. ARMY CORPS OF ENGINEERS      *
                                                  *    HYDROLOGIC ENGINEERING CENTER     *
                                                  *          609 SECOND STREET           *
                                                  *       DAVIS, CALIFORNIA 95616        *
                                                  *          (916) 756-1104              *
                                                  *                                      *
                                                  ****************************************
```

```
                    HEC-1 Analysis using WMS
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin E - 100-Year 6-Hour Storm Event
                    April 2004

  6 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

  7 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

 12 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

 17 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

 22 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

    IT        HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE     28APR 4  STARTING DATE
                    ITIME        0000  STARTING TIME
                       NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     28APR 4  ENDING DATE
                   NDTIME        1635  ENDING TIME
                    ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   16.58 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

  8 JD        INDEX STORM NO. 1
                    STRM        3.33  PRECIPITATION DEPTH
                    TRDA         .01  TRANSPOSITION DRAINAGE AREA

  9 PI          PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                   .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                   .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00

 13 JD        INDEX STORM NO. 2
                    STRM        3.31  PRECIPITATION DEPTH
                    TRDA         .50  TRANSPOSITION DRAINAGE AREA

 14 PI          PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                   .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                   .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00

 18 JD        INDEX STORM NO. 3
                    STRM        3.29  PRECIPITATION DEPTH
                    TRDA        1.00  TRANSPOSITION DRAINAGE AREA

 19 PI          PRECIPITATION PATTERN
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                   .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                   .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                   .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                   .00       .00

 23 JD        INDEX STORM NO. 4
                    STRM        3.20  PRECIPITATION DEPTH
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```
                    TRDA        5.00  TRANSPOSITION DRAINAGE AREA

 24 PI            PRECIPITATION PATTERN
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                      .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                      .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                      .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                      .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 27 KK    *        E4  *
          *            *
          **************

 28 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 29 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .07  SUBBASIN AREA

 30 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .38  MOISTURE DEFICIT
                      PSIF        6.40  WETTING FRONT SUCTION
                     XKSAT         .15  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 29 UI          INPUT UNITGRAPH,  19 ORDINATES,  VOLUME = 1.00
                       .0       8.7      26.9      53.5      74.7      82.8      74.3      54.4      38.7      27.4
                     19.1      14.2       9.5       6.5       5.5       2.1       2.1       2.1       2.1
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 33 KK    *        3R  *        CNAME     CE3
          *            *
          **************

 34 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 35 RS          STORAGE ROUTING
                     NSTPS           6  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 36 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       3149.  REACH LENGTH
                       SEL       .0099  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 38 RY        ELEVATION   1590.70   1589.77   1589.14   1588.02   1587.59   1590.78   1590.87   1592.18
 37 RX        DISTANCE        .00    126.12    197.90    233.63    269.37    361.16    432.63    489.90
```

```
                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .24       .94      1.96      3.24      4.78      6.57      8.68     11.36     14.64
          OUTFLOW        .00      2.36     15.40     44.54     89.98    153.62    237.42    350.65    495.87    673.14
        ELEVATION    1587.59   1587.83   1588.07   1588.31   1588.56   1588.80   1589.04   1589.28   1589.52   1589.76

          STORAGE      18.57     23.19     28.50     34.51     41.59     49.31     57.22     65.32     73.60     82.06
          OUTFLOW     886.15   1140.85   1441.59   1796.02   2269.71   2823.30   3441.40   4121.16   4860.93   5659.61
        ELEVATION    1590.01   1590.25   1590.49   1590.73   1590.97   1591.21   1591.46   1591.70   1591.94   1592.18

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      237. TO     5660.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 39 KK      *        E3  *
            *            *
            **************

 40 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 41 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .09  SUBBASIN AREA

 42 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .38  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .15  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 41 UI          INPUT UNITGRAPH,  18 ORDINATES,  VOLUME = 1.00
                        .0      13.5      47.2      90.8     121.6     126.9     104.6      72.0      50.0      34.5
                      23.8      16.4      11.0       8.9       3.3       3.3       3.3       3.3
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 45 KK      *      CE2R  *        CNAME      2R
            *            *
            **************

 46 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 47 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 48 KK      *        E2  *
            *            *
            **************
```

```
 49 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 50 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .10  SUBBASIN AREA

 51 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .38  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .15  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 50 UI          INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                       .0      13.0      35.7      75.8     106.6     123.0     119.3      94.6      68.3      49.8
                     35.7      26.1      18.9      13.8       8.9       7.9       3.2       3.2       3.2       3.2
                                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


             **************
             *            *
 55 KK       *      CE2   *        CNAME      2R
             *            *
             **************

 56 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 57 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


             **************
             *            *
 58 KK       *       2R   *        CNAME      CE2
             *            *
             **************

 59 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 60 RS          STORAGE ROUTING
                      NSTPS           3  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 61 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1473.  REACH LENGTH
                        SEL       .0085  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
```

```
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 63 RY        ELEVATION   1561.80   1561.00   1560.03   1559.54   1559.35   1560.27   1561.89   1563.27
 62 RX        DISTANCE        .00    119.00    162.00    243.15    286.15    353.15    401.15    444.15

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .21       .81      1.75      2.99      4.39      5.91      7.53      9.26     11.18
          OUTFLOW        .00      3.88     23.84     67.14    147.47    267.26    423.39    610.69    828.81   1073.16
        ELEVATION    1559.35   1559.56   1559.76   1559.97   1560.18   1560.38   1560.59   1560.79   1561.00   1561.21

          STORAGE      13.35     15.77     18.45     21.26     24.11     27.01     29.95     32.93     35.96     39.04
          OUTFLOW    1355.07   1675.63   2039.09   2460.05   2920.63   3419.72   3956.39   4529.94   5139.78   5785.45
        ELEVATION    1561.41   1561.62   1561.83   1562.03   1562.24   1562.44   1562.65   1562.86   1563.06   1563.27

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      267. TO     5785.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 64 KK    *        E1  *
          *            *
          **************

 65 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 66 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .09  SUBBASIN AREA

 67 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .38  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .15  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 66 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                        .0      21.1      80.6     139.5     157.4     120.9      75.9      47.5      30.0      18.9
                      11.4       5.8       4.1       4.1
                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 70 KK    *       CE1  *        CNAME      1R
          *            *
          **************

 71 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 72 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
```

```
73 KK      *        1R  *        CNAME     CE1
           *            *
           **************

74 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          4  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       .083  TIME INTERVAL IN HOURS


               HYDROGRAPH ROUTING DATA

75 RN          NO ROUTING

                                                    ***
1
                                          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 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	E4	119.	4.33	12.	4.	4.	.07		
+	ROUTED TO	3R	102.	4.67	12.	4.	4.	.07		
+	HYDROGRAPH AT	E3	180.	4.33	18.	6.	6.	.09		
+	2 COMBINED AT	CE2R	201.	4.42	30.	11.	11.	.16		
+	HYDROGRAPH AT	E2	182.	4.33	20.	7.	7.	.10		
+	2 COMBINED AT	CE2	378.	4.33	50.	18.	18.	.26		
+	ROUTED TO	2R	370.	4.50	50.	18.	18.	.26		
+	HYDROGRAPH AT	E1	207.	4.25	17.	6.	6.	.09		
+	2 COMBINED AT	CE1	486.	4.42	67.	24.	24.	.36		
+	ROUTED TO	1R	486.	4.42	67.	24.	24.	.36		

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

Basin E

100 – Year
24 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              JUN   1998           *
*            VERSION 4.1            *
*                                   *
*  RUN DATE   29APR04  TIME  19:54:05*
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*   HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET        *
*        DAVIS, CALIFORNIA 95616    *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin E - 100-Year 24-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   4.209    0.01
              * 24-hour distribution
  9           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 10           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 11           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 12           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 13           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 14           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 15           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 16           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 17           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 18           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 19           IN      15 28APR04       0
 20           JD   3.999    10.0
              * 24-hour distribution
 21           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 23           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 24           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 28           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 30           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

 31           KK      E4
 32           KO       0       0     0.0       1      22
 33           BA  0.0653
 34           LG    0.35    0.38     6.4   0.152     0.0
              * S_Graph
 35           UI     0.0    8.66    26.9   53.53   74.66   82.83   74.29   54.38   38.69   27.35
 36           UI   19.11   14.21    9.46    6.48    5.46    2.11    2.11    2.11    2.11     0.0

 37           KK      3R   CNAME     CE3
 38           KO       0       0     0.0       0      22
 39           RS       6    FLOW    -1.0     0.0
 40           RC    0.07    0.05    0.07 3149.05  0.0099     0.0
              * 3R
 41           RX     0.0  126.12   197.9  233.63  269.37  361.16  432.63   489.9
 42           RY  1590.7 1589.77 1589.14 1588.02 1587.59 1590.78 1590.87 1592.18
```



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

 43           KK      E3
 44           KO       0       0     0.0       1      22
 45           BA   0.095
```

```
46          LG    0.35    0.38     6.4   0.152     0.0
            * S_Graph
47          UI     0.0   13.51   47.18   90.84  121.58  126.87  104.55   72.04   50.03   34.53
48          UI   23.76   16.37   11.01    8.89    3.29    3.29    3.29    3.29     0.0

49          KK    CE2R   CNAME      2R
50          KO       0       0     0.0       0      22
51          HC       2   0.160

52          KK      E2
53          KO       0       0     0.0       1      22
54          BA   0.105
55          LG    0.35    0.38     6.4   0.152     0.0
            * S_Graph
56          UI     0.0   13.03   35.66    75.8  106.62  123.01  119.26    94.6   68.27   49.78
57          UI    35.7   26.14   18.92   13.81    8.92     7.9    3.17    3.17    3.17    3.17
58          UI     0.0

59          KK     CE2   CNAME      2R
60          KO       0       0     0.0       0      22
61          HC       2   0.265

62          KK      2R   CNAME     CE2
63          KO       0       0     0.0       0      22
64          RS       3    FLOW    -1.0     0.0
65          RC    0.07    0.05    0.07 1472.58  0.0085     0.0
            * 2R
66          RX     0.0   119.0   162.0  243.15  286.15  353.15  401.15  444.15
67          RY  1561.8  1561.0 1560.03 1559.54 1559.35 1560.27 1561.89 1563.27

68          KK      E1
69          KO       0       0     0.0       1      22
70          BA   0.093
71          LG    0.35    0.38     6.4   0.152     0.0
            * S_Graph
72          UI     0.0   21.06   80.62  139.49   157.4   120.9   75.89   47.45    30.0   18.85
73          UI   11.44     5.8    4.07    4.07     0.0

74          KK     CE1   CNAME      1R
75          KO       0       0     0.0       0      22
76          HC       2   0.358

77          KK      1R   CNAME     CE1
78          KO       0       0     0.0       0      22
79          RN      1R
80          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   31          E4
                V
                V
   37          3R
                .
                .
   43           .          E3
                .           .
                .           .
   49        CE2R............
                .
                .
   52           .          E2
                .           .
                .           .
   59         CE2............
                V
                V
   62          2R
                .
                .
   68           .          E1
                .           .
                .           .
   74         CE1............
                V
                V
   77          1R
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*             JUN   1998               *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   29APR04  TIME  19:54:05  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
                    HEC-1 Analysis using WMS
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin E - 100-Year 6-Hour Storm Event
                    April 2004

  6 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

  7 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

 19 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

    IT        HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE     28APR 4  STARTING DATE
                    ITIME        0000  STARTING TIME
                       NQ        200  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     28APR 4  ENDING DATE
                   NDTIME        1635  ENDING TIME
                    ICENT          19  CENTURY MARK

              COMPUTATION INTERVAL      .08 HOURS
                   TOTAL TIME BASE    16.58 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

  8 JD        INDEX STORM NO. 1
                    STRM        4.21  PRECIPITATION DEPTH
                    TRDA         .01  TRANSPOSITION DRAINAGE AREA

  9 PI          PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .00       .01       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                     .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00

 20 JD        INDEX STORM NO. 2
                    STRM        4.00  PRECIPITATION DEPTH
                    TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 21 PI          PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .01       .00       .01       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                     .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 31 KK    *     E4     *
          *            *
          **************

 32 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 33 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .07  SUBBASIN AREA

 34 LG        GREEN AND AMPT LOSS RATE
                    STRTL        .35  STARTING LOSS
                      DTH        .38  MOISTURE DEFICIT
                     PSIF       6.40  WETTING FRONT SUCTION
                    XKSAT        .15  HYDRAULIC CONDUCTIVITY
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

 33 UI        INPUT UNITGRAPH,  19 ORDINATES,  VOLUME = 1.00
                      .0       8.7      26.9      53.5      74.7      82.8      74.3      54.4      38.7      27.4
                    19.1      14.2       9.5       6.5       5.5       2.1       2.1       2.1       2.1
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 37 KK    *     3R     *        CNAME     CE3
          *            *
          **************

 38 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 39 RS        STORAGE ROUTING
                    NSTPS          6  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

 40 RC        NORMAL DEPTH CHANNEL
                      ANL       .070  LEFT OVERBANK N-VALUE
                     ANCH       .050  MAIN CHANNEL N-VALUE
                      ANR       .070  RIGHT OVERBANK N-VALUE
                    RLNTH      3149.  REACH LENGTH
                      SEL      .0099  ENERGY SLOPE
                    ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                        CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 42 RY        ELEVATION   1590.70   1589.77   1589.14   1588.02   1587.59   1590.78   1590.87   1592.18
 41 RX        DISTANCE        .00    126.12    197.90    233.63    269.37    361.16    432.63    489.90
                                                                  ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .24       .94      1.96      3.24      4.78      6.57      8.68     11.36     14.64
          OUTFLOW        .00      2.36     15.40     44.54     89.98    153.62    237.42    350.65    495.87    673.14
        ELEVATION    1587.59   1587.83   1588.07   1588.31   1588.56   1588.80   1589.04   1589.28   1589.52   1589.76

          STORAGE      18.57     23.19     28.50     34.51     41.59     49.31     57.22     65.32     73.60     82.06
          OUTFLOW     886.15   1140.85   1441.59   1796.02   2269.71   2823.30   3441.40   4121.16   4860.93   5659.61
        ELEVATION    1590.01   1590.25   1590.49   1590.73   1590.97   1591.21   1591.46   1591.70   1591.94   1592.18
```

```
*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      237. TO      5660.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 43 KK    *     E3     *
          *            *
          **************

 44 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 45 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .09  SUBBASIN AREA

 46 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .38  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .15  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 45 UI          INPUT UNITGRAPH,  18 ORDINATES,  VOLUME = 1.00
                        .0      13.5      47.2      90.8     121.6     126.9     104.6      72.0      50.0      34.5
                      23.8      16.4      11.0       8.9       3.3       3.3       3.3       3.3
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 49 KK    *    CE2R    *        CNAME      2R
          *            *
          **************

 50 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 51 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 52 KK    *     E2     *
          *            *
          **************

 53 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA
```

```
          STORAGE      13.35     15.77     18.45     21.26     24.11     27.01     29.95     32.93     35.96     39.04
         OUTFLOW    1355.07   1675.63   2039.09   2460.05   2920.63   3419.72   3956.39   4529.94   5139.78   5785.45
       ELEVATION    1561.41   1561.62   1561.83   1562.03   1562.24   1562.44   1562.65   1562.86   1563.06   1563.27

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      267. TO     5785.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 68 KK    *        E1  *
          *            *
          **************

 69 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 70 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .09  SUBBASIN AREA

 71 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .38  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .15  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 70 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                        .0      21.1      80.6     139.5     157.4     120.9      75.9      47.5      30.0      18.9
                      11.4       5.8       4.1       4.1
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 74 KK    *       CE1  *        CNAME      1R
          *            *
          **************

 75 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 76 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 77 KK    *         1R *        CNAME     CE1
          *            *
          **************

 78 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
```

```
54 BA          SUBBASIN CHARACTERISTICS
                     TAREA          .10  SUBBASIN AREA

55 LG          GREEN AND AMPT LOSS RATE
                     STRTL          .35  STARTING LOSS
                       DTH          .38  MOISTURE DEFICIT
                      PSIF         6.40  WETTING FRONT SUCTION
                     XKSAT          .15  HYDRAULIC CONDUCTIVITY
                     RTIMP          .00  PERCENT IMPERVIOUS AREA

54 UI          INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                      .0      13.0      35.7      75.8     106.6     123.0     119.3      94.6      68.3      49.8
                    35.7      26.1      18.9      13.8       8.9       7.9       3.2       3.2       3.2       3.2
                                                                   ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
59 KK     *     CE2    *        CNAME      2R
          *            *
          **************

60 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

61 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                   ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
62 KK     *      2R    *        CNAME      CE2
          *            *
          **************

63 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

64 RS          STORAGE ROUTING
                     NSTPS           3  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

65 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       1473.  REACH LENGTH
                       SEL       .0085  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
67 RY        ELEVATION   1561.80   1561.00   1560.03   1559.54   1559.35   1560.27   1561.89   1563.27
66 RX        DISTANCE        .00    119.00    162.00    243.15    286.15    353.15    401.15    444.15
                                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

        STORAGE        .00       .21       .81      1.75      2.99      4.39      5.91      7.53      9.26     11.18
        OUTFLOW        .00      3.88     23.84     67.14    147.47    267.26    423.39    610.69    828.81   1073.16
      ELEVATION    1559.35   1559.56   1559.76   1559.97   1560.18   1560.38   1560.59   1560.79   1561.00   1561.21
```

TIMINT .083 TIME INTERVAL IN HOURS

HYDROGRAPH ROUTING DATA

79 RN NO ROUTING

***

1

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 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	E4	107.	12.33	11.	4.	4.	.07		
+	ROUTED TO	3R	91.	12.67	11.	4.	4.	.07		
+	HYDROGRAPH AT	E3	160.	12.25	17.	6.	6.	.09		
+	2 COMBINED AT	CE2R	180.	12.42	28.	10.	10.	.16		
+	HYDROGRAPH AT	E2	163.	12.33	18.	7.	7.	.10		
+	2 COMBINED AT	CE2	337.	12.33	46.	17.	17.	.26		
+	ROUTED TO	2R	329.	12.50	46.	17.	17.	.26		
+	HYDROGRAPH AT	E1	183.	12.25	16.	6.	6.	.09		
+	2 COMBINED AT	CE1	430.	12.42	62.	22.	22.	.36		
+	ROUTED TO	1R	430.	12.42	62.	22.	22.	.36		

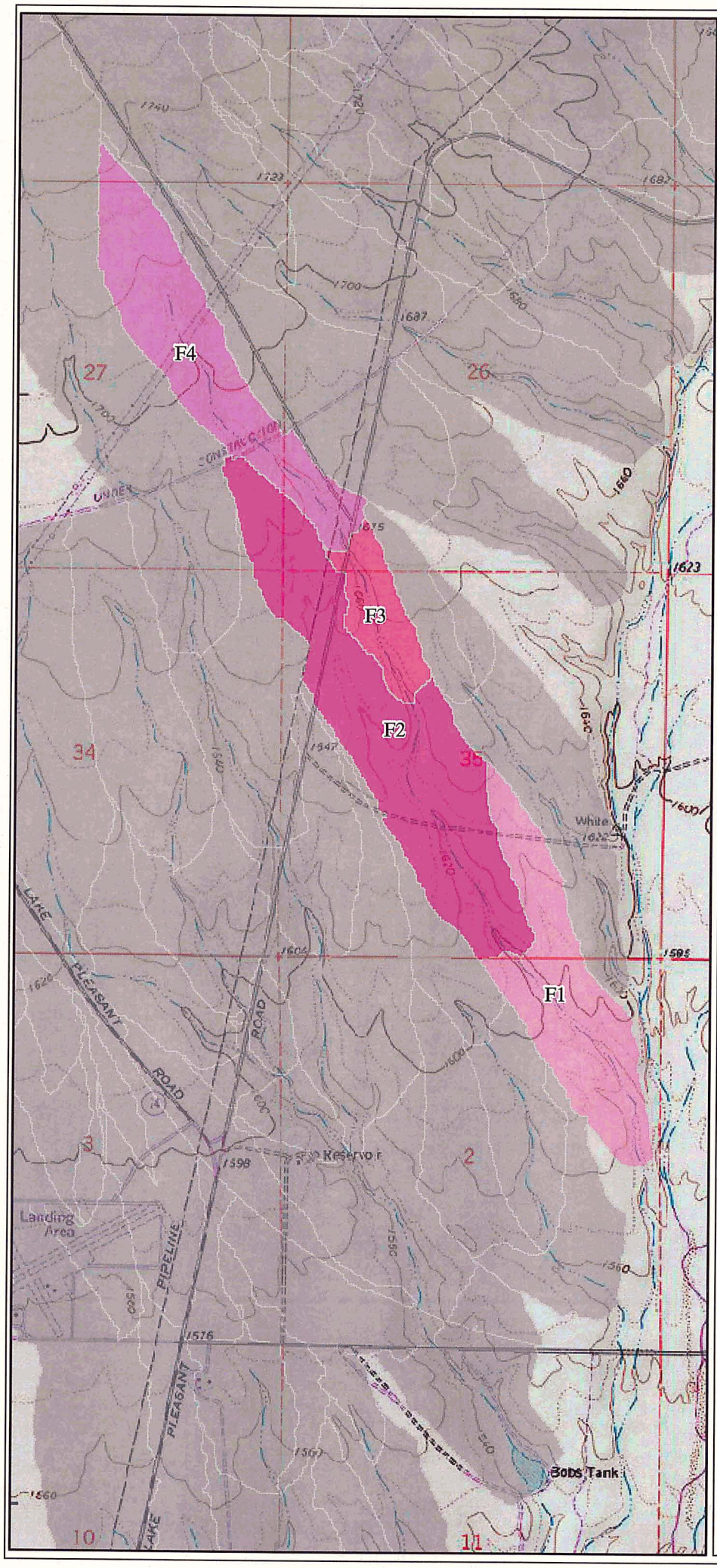
*** NORMAL END OF HEC-1 ***

Basin F

100 – Year
6 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

New River West FDS
Appendix D.6.F
Basin F



LEGEND

- Project Boundary
- All Other Basins

Basin F Sub-basin IDs

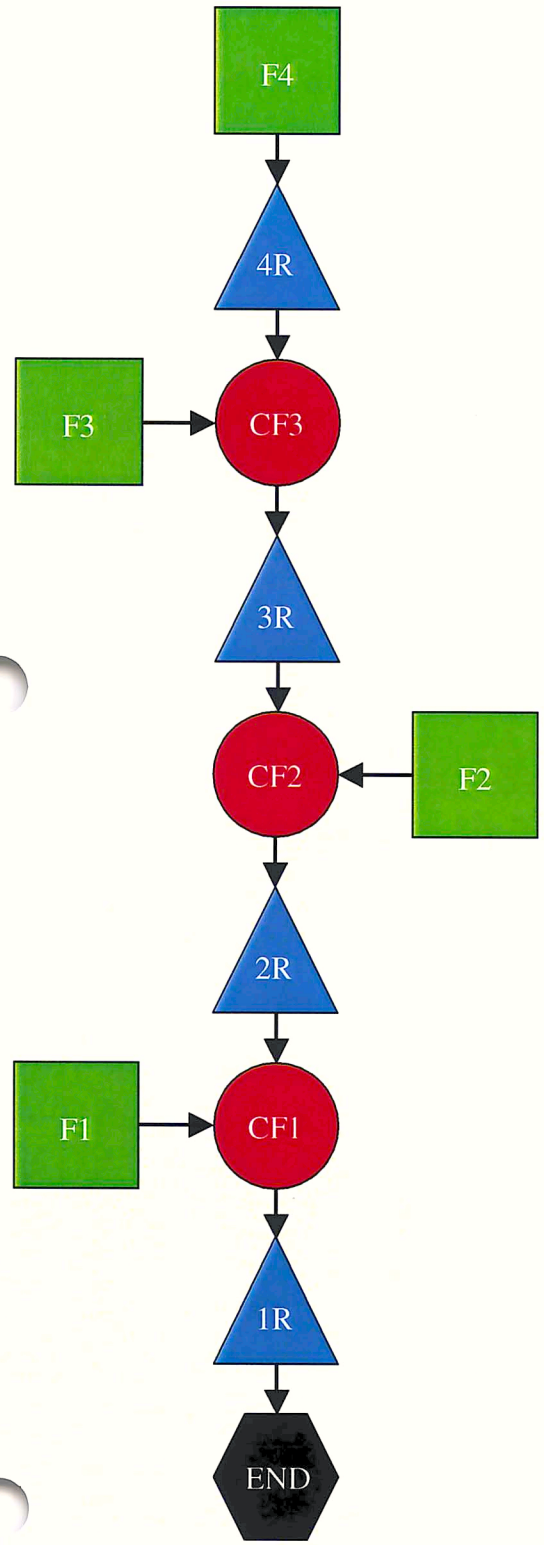
- F1
- F2
- F3
- F4

N

0 500 1,000 2,000
Feet
Scale: 1" = 2,000'

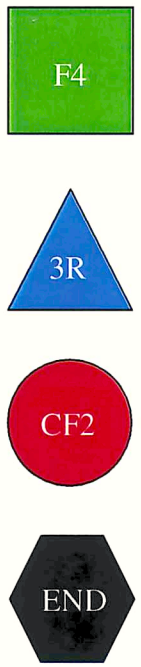
Horizontal Datum:	Data Sources:	Date: 06.09.04
NAD83 State Plane	USGS 7.5':	MCFCD Proj. No: FCD 2003-C057
AZ Central	Biscuit Flat	Proj. No: 23443706
Vertical Datum:	MCCFCD	PM: M.R.
NGVD 29		Checked By: M.M.
		Cartography: D.G.

P:\New_River_FDS\GIS\mxds\basins\nr_basinF.mxd



Basin F

HEC-1 Model Schematic



Sub-basin

Routing Reach

Concentration Point

End of Model

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              JUN  1998            *
*           VERSION 4.1             *
*                                   *
* RUN DATE   29APR04  TIME  19:58:36 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 756-1104           *
*                                   *
*************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - PCD 2003 C057
  3           ID  Basin F - 100-Year 6-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 19APR 4       0     200
  6           IO       4
  7           IN      15 19APR04       0
  8           JD   3.342    0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 11           PC   0.962   0.972   0.983   0.991     1.0
 12           IN      15 19APR04       0
 13           JD   3.321     0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 16           PC   0.962   0.972   0.983   0.991     1.0
 17           IN      15 19APR04       0
 18           JD   3.298     1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 20           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 21           PC  0.9572  0.9684  0.9798  0.9898     1.0
 22           IN      15 19APR04       0
 23           JD   3.208     5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 25           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 26           PC  0.9487   0.962  0.9743  0.9877     1.0

 27           KK      F4
 28           KO       0       0     0.0       1      22
 29           BA  0.1914
 30           LG   0.341   0.306   7.587   0.099     0.0
              * S_Graph
 31           UI     0.0   16.54   22.96   59.24   92.82  122.31  145.35  157.22   155.9  142.26
 32           UI  115.01   91.91   73.75   59.03    47.5   36.68   30.11   25.25   17.53   15.53
 33           UI   11.32   11.32    6.19    4.03    4.03    4.03    4.03    4.03    4.03     0.0

 34           KK      4R   CNAME     CF4
 35           KO       0       0     0.0       0      22
 36           RS       5    FLOW    -1.0     0.0
 37           RC    0.07    0.05    0.07 2530.51  0.0105     0.0
              * 4R
 38           RX     0.0   64.47  114.63  158.46  213.83  281.43  351.44  423.89
 39           RY  1663.4 1660.87 1658.86 1656.36 1657.11 1659.53 1662.18 1664.29

 40           KK      F3
 41           KO       0       0     0.0       1      22
 42           BA  0.0572
 43           LG   0.345   0.372     6.4   0.156     0.0
              * S_Graph
 44           UI     0.0   14.58   56.09   93.95  100.13   70.02   42.96   26.03   16.11    9.52
```

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

 45           UI    6.02    2.64    2.64    2.64

 46           KK     CF3   CNAME      3R
 47           KO       0       0     0.0       0      22
 48           HC       2   0.249

 49           KK      3R   CNAME     CF3
 50           KO       0       0     0.0       0      22
 51           RS       8    FLOW    -1.0     0.0
 52           RC    0.07    0.05    0.07 4367.22  0.0095     0.0
              * 3R
 53           RX     0.0  132.57  222.45  286.27  349.27  450.29  546.55  620.15
 54           RY  1627.2 1623.83 1621.92 1622.01 1622.56 1626.48 1629.82 1631.07

 55           KK      F2
 56           KO       0       0     0.0       1      22
 57           BA  0.2971
 58           LG   0.326   0.339     6.4   0.174     0.0
              * S_Graph
 59           UI     0.0   23.81   26.82    78.1  122.02  160.74  201.08  219.82  228.22  219.01
 60           UI  193.29  156.95  127.64  103.87   84.65   68.75   55.09    45.1   36.93   28.74
 61           UI   25.24   17.49    16.3   15.85     5.8     5.8     5.8     5.8     5.8     5.8
 62           UI     5.8     0.0

 63           KK     CF2   CNAME      2R
 64           KO       0       0     0.0       0      22
 65           HC       2   0.546

 66           KK      2R   CNAME     CF2
 67           KO       0       0     0.0       0      22
 68           RS       7    FLOW    -1.0     0.0
 69           RC    0.07    0.05    0.07 3739.14  0.0084     0.0
              * 2R
 70           RX     0.0   97.42  153.32   195.8   252.6  317.97  380.77  437.57
 71           RY  1592.1 1587.98 1585.95 1585.44 1585.04 1586.06  1589.4 1591.66

 72           KK      F1
 73           KO       0       0     0.0       1      22
 74           BA  0.1725
 75           LG   0.337   0.372   6.248   0.161     0.0
              * S_Graph
 76           UI     0.0   17.09   31.06   74.14  111.14  144.24  160.55  161.13  144.13  112.74
 77           UI   87.26   67.61   52.18   40.26   30.99   24.71   18.11   13.57    11.7    8.51
 78           UI    4.16    4.16    4.16    4.16    4.16    4.16

 79           KK     CF1   CNAME      1R
 80           KO       0       0     0.0       0      22
 81           HC       2   0.718

 82           KK      1R   CNAME     CF1
 83           KO       0       0     0.0       0      22
 84           RN      1R
 85           ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   27          F4
                V
                V
   34          4R
                .
                .
   40           .          F3
                .           .
                .           .
   46         CF3............
                V
                V
   49          3R
                .
                .
   55           .          F2
                .           .
                .           .
   63         CF2............
                V
                V
   66          2R
                .
                .
   72           .          F1
                .           .
                .           .
   79         CF1............
                V
                V
   82          1R

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUN   1998               *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   29APR04  TIME  19:58:36   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
                    HEC-1 Analysis using WMS
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin F - 100-Year 6-Hour Storm Event
                    April 2004

  6 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

  7 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE    19APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

 12 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE    19APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

 17 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE    19APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

 22 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE    19APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

    IT        HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE    19APR 4  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        200  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE    19APR 4  ENDING DATE
                   NDTIME       1635  ENDING TIME
                    ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   16.58 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

  8 JD        INDEX STORM NO. 1
                    STRM        3.34  PRECIPITATION DEPTH
                    TRDA         .01  TRANSPOSITION DRAINAGE AREA

  9 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

 13 JD        INDEX STORM NO. 2
                    STRM        3.32  PRECIPITATION DEPTH
                    TRDA         .50  TRANSPOSITION DRAINAGE AREA

 14 PI          PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

 18 JD        INDEX STORM NO. 3
                    STRM        3.30  PRECIPITATION DEPTH
```

```
                    TRDA        1.00  TRANSPOSITION DRAINAGE AREA

 19 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                     .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                     .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00

 23 JD          INDEX STORM NO. 4
                    STRM        3.21  PRECIPITATION DEPTH
                    TRDA        5.00  TRANSPOSITION DRAINAGE AREA

 24 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                     .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                     .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 27 KK      *        F4  *
            *            *
            **************

 28 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

               SUBBASIN RUNOFF DATA

 29 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .19  SUBBASIN AREA

 30 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .34  STARTING LOSS
                       DTH         .31  MOISTURE DEFICIT
                      PSIF        7.59  WETTING FRONT SUCTION
                     XKSAT         .10  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 29 UI          INPUT UNITGRAPH,  29 ORDINATES,  VOLUME = 1.00
                       .0      16.5      23.0      59.2      92.8     122.3     145.4     157.2     155.9     142.3
                    115.0      91.9      73.8      59.0      47.5      36.7      30.1      25.3      17.5      15.5
                     11.3      11.3       6.2       4.0       4.0       4.0       4.0       4.0       4.0
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 34 KK      *        4R  *        CNAME     CF4
            *            *
            **************

 35 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

               HYDROGRAPH ROUTING DATA

 36 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
```

```
                        X          .00 WORKING R AND D COEFFICIENT

 37 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       2531.  REACH LENGTH
                       SEL       .0105  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 39 RY        ELEVATION   1663.40   1660.87   1658.86   1656.36   1657.11   1659.53   1662.18   1664.29
 38 RX        DISTANCE        .00     64.47    114.63    158.46    213.83    281.43    351.44    423.89

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .46      1.84      3.82      6.27      9.17     12.54     16.40     20.80     25.72
          OUTFLOW        .00      8.55     55.70    161.51    324.56    550.71    846.40   1244.39   1752.37   2394.23
        ELEVATION    1656.36   1656.78   1657.19   1657.61   1658.03   1658.45   1658.86   1659.28   1659.70   1660.12

          STORAGE      31.16     37.12     43.60     50.61     58.14     66.25     74.95     84.27     94.02    104.12
          OUTFLOW    3133.82   3975.01   4921.36   5976.85   7144.67   8423.19   9825.15  11362.91  13084.02  14936.94
        ELEVATION    1660.53   1660.95   1661.37   1661.79   1662.20   1662.62   1663.04   1663.46   1663.87   1664.29

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      162. TO    14937.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 40 KK    *        P3  *
          *            *
          **************

 41 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 42 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .06  SUBBASIN AREA

 43 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .34  STARTING LOSS
                        DTH        .37  MOISTURE DEFICIT
                       PSIF       6.40  WETTING FRONT SUCTION
                      XKSAT        .16  HYDRAULIC CONDUCTIVITY
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

 42 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                       .0      14.6      56.1      93.9     100.1      70.0      43.0      26.0      16.1       9.5
                      6.0       2.6       2.6       2.6

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 46 KK    *       CF3  *        CNAME      3R
          *            *
          **************

 47 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

 48 HC          HYDROGRAPH COMBINATION
```

```
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 49 KK    *        3R  *        CNAME     CP3
          *            *
          **************

 50 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 51 RS          STORAGE ROUTING
                     NSTPS           8  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 52 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       4367.  REACH LENGTH
                       SEL       .0095  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 54 RY        ELEVATION   1627.20   1623.83   1621.92   1622.01   1622.56   1626.48   1629.82   1631.07
 53 RX        DISTANCE        .00    132.57    222.45    286.27    349.27    450.29    546.55    620.15

                                                    ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      4.22     11.98     21.54     32.79     45.64     60.00     75.88     93.28    112.18
          OUTFLOW        .00     55.95    256.09    601.91   1088.62   1725.88   2514.85   3462.75   4577.25   5866.23
        ELEVATION    1621.92   1622.40   1622.88   1623.36   1623.85   1624.33   1624.81   1625.29   1625.77   1626.25

          STORAGE     132.61    154.62    177.72    201.49    225.93    251.04    276.83    303.40    331.29    360.55
          OUTFLOW    7431.77   9282.68  11475.94  13874.83  16477.78  19283.74  22292.07  25478.44  28868.15  32483.97
        ELEVATION    1626.74   1627.22   1627.70   1628.18   1628.66   1629.14   1629.63   1630.11   1630.59   1631.07

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      602. TO    32484.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 55 KK    *         F2 *
          *            *
          **************

 56 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 57 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .30  SUBBASIN AREA

 58 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .33  STARTING LOSS
                        DTH         .34  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
```

```
                    XKSAT          .17  HYDRAULIC CONDUCTIVITY
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

 57 UI          INPUT UNITGRAPH,  31 ORDINATES,  VOLUME = 1.00
                      .0      23.8      26.8      78.1     122.0     160.7     201.1     219.8     228.2     219.0
                   193.3     156.9     127.6     103.9      84.7      68.8      55.1      45.1      36.9      28.7
                    25.2      17.5      16.3      15.9       5.8       5.8       5.8       5.8       5.8       5.8
                     5.8
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 63 KK      *       CF2  *        CNAME      2R
            *            *
            **************

 64 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 65 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 66 KK      *        2R  *        CNAME      CF2
            *            *
            **************

 67 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

 68 RS          STORAGE ROUTING
                      NSTPS           7  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 69 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       3739.  REACH LENGTH
                        SEL       .0084  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 71 RY        ELEVATION   1592.10   1587.98   1585.95   1585.44   1585.04   1586.06   1589.40   1591.66
 70 RX        DISTANCE        .00     97.42    153.32    195.80    252.60    317.97    380.77    437.57
                                                                  ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.22      4.59      9.59     15.35     21.66     28.52     35.93     43.89     52.38
          OUTFLOW        .00     12.65     79.51    233.44    489.99    826.18   1240.20   1731.63   2300.97   2950.19
        ELEVATION    1585.04   1585.41   1585.78   1586.15   1586.53   1586.90   1587.27   1587.64   1588.01   1588.38

          STORAGE      61.36     70.85     80.84     91.40    102.53    114.23    126.52    139.38    152.82    166.64
          OUTFLOW    3678.02   4485.32   5371.28   6335.09   7384.11   8520.06   9744.75  11060.00  12478.61  14039.00
        ELEVATION    1588.76   1589.13   1589.50   1589.87   1590.24   1590.61   1590.99   1591.36   1591.73   1592.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      233. TO    14039.
```

```
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 72 KK    *        F1  *
          *            *
          **************

 73 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 74 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .17  SUBBASIN AREA

 75 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .34  STARTING LOSS
                        DTH         .37  MOISTURE DEFICIT
                       PSIF        6.25  WETTING FRONT SUCTION
                      XKSAT         .16  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 74 UI          INPUT UNITGRAPH,  26 ORDINATES,  VOLUME = 1.00
                        .0      17.1      31.1      74.1     111.1     144.2     160.6     161.1     144.1     112.7
                      87.3      67.6      52.2      40.3      31.0      24.7      18.1      13.6      11.7       8.5
                       4.2       4.2       4.2       4.2       4.2       4.2
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 79 KK    *       CF1  *        CNAME      1R
          *            *
          **************

 80 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 81 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 82 KK    *         1R  *        CNAME     CF1
          *            *
          **************

 83 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA
```

84 RN NO ROUTING

1

***

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 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	F4	273.	4.50	40.	14.	14.	.19		
+	ROUTED TO	4R	263.	4.67	40.	14.	14.	.19		
+	HYDROGRAPH AT	F3	130.	4.25	11.	4.	4.	.06		
+	2 COMBINED AT	CF3	283.	4.67	51.	18.	18.	.25		
+	ROUTED TO	3R	263.	5.08	51.	18.	18.	.25		
+	HYDROGRAPH AT	F2	364.	4.58	56.	20.	20.	.30		
+	2 COMBINED AT	CF2	471.	4.75	106.	38.	38.	.55		
+	ROUTED TO	2R	457.	5.08	105.	38.	38.	.55		
+	HYDROGRAPH AT	F1	252.	4.42	33.	12.	12.	.17		
+	2 COMBINED AT	CF1	503.	5.00	134.	48.	48.	.72		
+	ROUTED TO	1R	503.	5.00	134.	48.	48.	.72		

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

Basin F

100 – Year
24 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              JUN   1998           *
*            VERSION 4.1            *
*                                   *
* RUN DATE   29APR04  TIME  20:00:57 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*          (916) 756-1104           *
*                                   *
*************************************
```

```
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  HEC-1 Analysis using WMS
    2           ID  New River West Tributaries FDS - FCD 2003 C057
    3           ID  Basin F - 100-Year 24-Hour Storm Event
    4           ID  April 2004
                *DIAGRAM
    5           IT       5 28APR 4       0     200
    6           IO       4
    7           IN      15 28APR04       0
    8           JD   4.286    0.01
                * 24-hour distribution
    9           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
   10           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
   11           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
   12           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
   13           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
   14           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
   15           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
   16           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
   17           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
   18           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
   19           IN      15 28APR04       0
   20           JD   4.072   10.0
                * 24-hour distribution
   21           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
   22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
   23           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
   24           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
   25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
   26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
   27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
   28           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
   29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
   30           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

   31           KK      F4
   32           KO       0       0     0.0       1      22
   33           BA  0.1914
   34           LG   0.341   0.306   7.587   0.099     0.0
                * S_Graph
   35           UI     0.0   16.54   22.96   59.24   92.82  122.31  145.35  157.22   155.9  142.26
   36           UI  115.01   91.91   73.75   59.03    47.5   36.68   30.11   25.25   17.53   15.53
   37           UI   11.32   11.32    6.19    4.03    4.03    4.03    4.03    4.03    4.03     0.0

   38           KK      4R   CNAME     CF4
   39           KO       0       0     0.0       0      22
   40           RS       5    FLOW    -1.0     0.0
   41           RC    0.07    0.05    0.07 2530.51  0.0105     0.0
                * 4R
   42           RX     0.0   64.47  114.63  158.46  213.83  281.43  351.44  423.89
   43           RY  1663.4 1660.87 1658.86 1656.36 1657.11 1659.53 1662.18 1664.29
1                                          HEC-1 INPUT                                                    PAGE  2

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

   44           KK      F3
   45           KO       0       0     0.0       1      22
```

```
 46          BA  0.0572
 47          LG   0.345   0.372     6.4   0.156     0.0
             * S_Graph
 48          UI     0.0   14.58   56.09   93.95  100.13   70.02   42.96   26.03   16.11    9.52
 49          UI    6.02    2.64    2.64    2.64

 50          KK     CF3   CNAME      3R
 51          KO       0       0     0.0       0      22
 52          HC       2   0.249

 53          KK      3R   CNAME     CF3
 54          KO       0       0     0.0       0      22
 55          RS       8    FLOW    -1.0     0.0
 56          RC    0.07    0.05    0.07 4367.22  0.0095     0.0
             * 3R
 57          RX     0.0  132.57  222.45  286.27  349.27  450.29  546.55  620.15
 58          RY  1627.2 1623.83 1621.92 1622.01 1622.56 1626.48 1629.82 1631.07

 59          KK      F2
 60          KO       0       0     0.0       1      22
 61          BA  0.2971
 62          LG   0.326   0.339     6.4   0.174     0.0
             * S_Graph
 63          UI     0.0   23.81   26.82    78.1  122.02  160.74  201.08  219.82  228.22  219.01
 64          UI  193.29  156.95  127.64  103.87   84.65   68.75   55.09    45.1   36.93   28.74
 65          UI   25.24   17.49    16.3   15.85     5.8     5.8     5.8     5.8     5.8     5.8
 66          UI     5.8     0.0

 67          KK     CF2   CNAME      2R
 68          KO       0       0     0.0       0      22
 69          HC       2   0.546

 70          KK      2R   CNAME     CF2
 71          KO       0       0     0.0       0      22
 72          RS       7    FLOW    -1.0     0.0
 73          RC    0.07    0.05    0.07 3739.14  0.0084     0.0
             * 2R
 74          RX     0.0   97.42  153.32   195.8   252.6  317.97  380.77  437.57
 75          RY  1592.1 1587.98 1585.95 1585.44 1585.04 1586.06  1589.4 1591.66

 76          KK      F1
 77          KO       0       0     0.0       1      22
 78          BA  0.1725
 79          LG   0.337   0.372   6.248   0.161     0.0
             * S_Graph
 80          UI     0.0   17.09   31.06   74.14  111.14  144.24  160.55  161.13  144.13  112.74
 81          UI   87.26   67.61   52.18   40.26   30.99   24.71   18.11   13.57    11.7    8.51
 82          UI    4.16    4.16    4.16    4.16    4.16    4.16
1                                          HEC-1 INPUT                                          PAGE  3

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


 83          KK     CF1   CNAME      1R
 84          KO       0       0     0.0       0      22
 85          HC       2   0.718

 86          KK      1R   CNAME     CF1
 87          KO       0       0     0.0       0      22
 88          RN      1R
 89          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

  31        F4
             V
             V
  38        4R
             .
             .
  44         .          F3
             .           .
             .           .
  50       CF3............
             V
             V
  53        3R
             .
             .
  59         .          F2
             .           .
             .           .
  67       CF2............
             V
             V
  70        2R
             .
             .
  76         .          F1
             .           .
             .           .
```

```
  83          CF1............
                V
                V
  86           1R

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   29APR04  TIME  20:00:57  *
*                                      *
****************************************

****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************


                    HEC-1 Analysis using WMS
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin F - 100-Year 24-Hour Storm Event
                    April 2004

  6 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

  7 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN          15  TIME INTERVAL IN MINUTES
                     JXDATE     28APR 4  STARTING DATE
                     JXTIME           0  STARTING TIME

 19 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN          15  TIME INTERVAL IN MINUTES
                     JXDATE     28APR 4  STARTING DATE
                     JXTIME           0  STARTING TIME

    IT          HYDROGRAPH TIME DATA
                       NMIN           5  MINUTES IN COMPUTATION INTERVAL
                      IDATE     28APR 4  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     28APR 4  ENDING DATE
                     NDTIME        1635  ENDING TIME
                      ICENT          19  CENTURY MARK

                COMPUTATION INTERVAL     .08 HOURS
                     TOTAL TIME BASE   16.58 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

  8 JD          INDEX STORM NO. 1
                      STRM        4.29  PRECIPITATION DEPTH
                      TRDA         .01  TRANSPOSITION DRAINAGE AREA

  9 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                     .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00

 20 JD          INDEX STORM NO. 2
                      STRM        4.07  PRECIPITATION DEPTH
                      TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 21 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .01     .00     .01
.01     .01     .01     .01     .01     .01     .01     .01     .03     .03
.03     .09     .09     .09     .01     .01     .01     .01     .01     .01
.01     .01     .01     .01     .01     .01     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00
```

*** ***

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              **************
              *            *
 31 KK        *     F4     *
              *            *
              **************

 32 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            4  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            1  PUNCH COMPUTED HYDROGRAPH
                       IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT         .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 33 BA          SUBBASIN CHARACTERISTICS
                      TAREA          .19  SUBBASIN AREA

 34 LG          GREEN AND AMPT LOSS RATE
                      STRTL          .34  STARTING LOSS
                        DTH          .31  MOISTURE DEFICIT
                       PSIF         7.59  WETTING FRONT SUCTION
                      XKSAT          .10  HYDRAULIC CONDUCTIVITY
                      RTIMP          .00  PERCENT IMPERVIOUS AREA

 33 UI          INPUT UNITGRAPH,  29 ORDINATES,  VOLUME = 1.00
                        .0      16.5      23.0      59.2      92.8     122.3     145.4     157.2     155.9     142.3
                     115.0      91.9      73.8      59.0      47.5      36.7      30.1      25.3      17.5      15.5
                      11.3      11.3       6.2       4.0       4.0       4.0       4.0       4.0       4.0
                                                                                  ***
```

*** ***

```
              **************
              *            *
 38 KK        *     4R     *        CNAME     CF4
              *            *
              **************

 39 KO          OUTPUT CONTROL VARIABLES
                      IPRNT            4  PRINT CONTROL
                      IPLOT            0  PLOT CONTROL
                      QSCAL           0.  HYDROGRAPH PLOT SCALE
                      IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                       IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT         .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 40 RS          STORAGE ROUTING
                      NSTPS            5  NUMBER OF SUBREACHES
                       ITYP         FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC        -1.00  INITIAL CONDITION
                          X          .00 WORKING R AND D COEFFICIENT

 41 RC          NORMAL DEPTH CHANNEL
                        ANL         .070  LEFT OVERBANK N-VALUE
                       ANCH         .050  MAIN CHANNEL N-VALUE
                        ANR         .070  RIGHT OVERBANK N-VALUE
                      RLNTH        2531.  REACH LENGTH
                        SEL        .0105  ENERGY SLOPE
```

```
                    ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 43 RY      ELEVATION   1663.40   1660.87   1658.86   1656.36   1657.11   1659.53   1662.18   1664.29
 42 RX      DISTANCE        .00     64.47    114.63    158.46    213.83    281.43    351.44    423.89

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .46      1.84      3.82      6.27      9.17     12.54     16.40     20.80     25.72
          OUTFLOW        .00      8.55     55.70    161.51    324.56    550.71    846.40   1244.39   1752.37   2394.23
        ELEVATION    1656.36   1656.78   1657.19   1657.61   1658.03   1658.45   1658.86   1659.28   1659.70   1660.12

          STORAGE      31.16     37.12     43.60     50.61     58.14     66.25     74.95     84.27     94.02    104.12
          OUTFLOW    3133.82   3975.01   4921.36   5976.85   7144.67   8423.19   9825.15  11362.91  13084.02  14936.94
        ELEVATION    1660.53   1660.95   1661.37   1661.79   1662.20   1662.62   1663.04   1663.46   1663.87   1664.29

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      162. TO    14937.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 44 KK      *        P3  *
            *            *
            **************

 45 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 46 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .06  SUBBASIN AREA

 47 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .34  STARTING LOSS
                        DTH         .37  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .16  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 46 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                       .0      14.6      56.1      93.9     100.1      70.0      43.0      26.0      16.1       9.5
                      6.0       2.6       2.6       2.6

                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 50 KK      *       CF3  *        CNAME      3R
            *            *
            **************

 51 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 52 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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```
          **************
          *            *
 53 KK    *        3R  *        CNAME     CF3
          *            *
          **************

 54 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 55 RS          STORAGE ROUTING
                      NSTPS           8  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 56 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       4367.  REACH LENGTH
                        SEL       .0095  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 58 RY        ELEVATION   1627.20   1623.83   1621.92   1622.01   1622.56   1626.48   1629.82   1631.07
 57 RX        DISTANCE        .00    132.57    222.45    286.27    349.27    450.29    546.55    620.15

                                                  ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      4.22     11.98     21.54     32.79     45.64     60.00     75.88     93.28    112.18
          OUTFLOW        .00     55.95    256.09    601.91   1088.62   1725.88   2514.85   3462.75   4577.25   5866.23
        ELEVATION    1621.92   1622.40   1622.88   1623.36   1623.85   1624.33   1624.81   1625.29   1625.77   1626.25

          STORAGE     132.61    154.62    177.72    201.49    225.93    251.04    276.83    303.40    331.29    360.55
          OUTFLOW    7431.77   9282.68  11475.94  13874.83  16477.78  19283.74  22292.07  25478.44  28868.15  32483.97
        ELEVATION    1626.74   1627.22   1627.70   1628.18   1628.66   1629.14   1629.63   1630.11   1630.59   1631.07

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      602. TO    32484.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 59 KK    *         F2 *
          *            *
          **************

 60 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 61 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .30  SUBBASIN AREA

 62 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .33  STARTING LOSS
                        DTH         .34  MOISTURE DEFICIT
                       PSIF        6.40  WETTING FRONT SUCTION
                      XKSAT         .17  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 61 UI          INPUT UNITGRAPH,  31 ORDINATES,  VOLUME = 1.00
                         .0      23.8      26.8      78.1     122.0     160.7     201.1     219.8     228.2     219.0
                       193.3     156.9     127.6     103.9      84.7      68.8      55.1      45.1      36.9      28.7
                        25.2      17.5      16.3      15.9       5.8       5.8       5.8       5.8       5.8       5.8
                         5.8
```

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                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 67 KK      *     CF2    *        CNAME      2R
            *            *
            **************

 68 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 69 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 70 KK      *      2R    *        CNAME      CF2
            *            *
            **************

 71 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 72 RS          STORAGE ROUTING
                      NSTPS           7  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 73 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       3739.  REACH LENGTH
                        SEL       .0084  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 75 RY        ELEVATION   1592.10   1587.98   1585.95   1585.44   1585.04   1586.06   1589.40   1591.66
 74 RX        DISTANCE        .00     97.42    153.32    195.80    252.60    317.97    380.77    437.57

                                                                    ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.22      4.59      9.59     15.35     21.66     28.52     35.93     43.89     52.38
          OUTFLOW        .00     12.65     79.51    233.44    489.99    826.18   1240.20   1731.63   2300.97   2950.19
        ELEVATION    1585.04   1585.41   1585.78   1586.15   1586.53   1586.90   1587.27   1587.64   1588.01   1588.38

          STORAGE      61.36     70.85     80.84     91.40    102.53    114.23    126.52    139.38    152.82    166.64
          OUTFLOW    3678.02   4485.32   5371.28   6335.09   7384.11   8520.06   9744.75  11060.00  12478.61  14039.00
        ELEVATION    1588.76   1589.13   1589.50   1589.87   1590.24   1590.61   1590.99   1591.36   1591.73   1592.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      233. TO    14039.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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```
                **************
                *            *
 76 KK          *     F1     *
                *            *
                **************

 77 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

                SUBBASIN RUNOFF DATA

 78 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .17  SUBBASIN AREA

 79 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .34  STARTING LOSS
                        DTH        .37  MOISTURE DEFICIT
                       PSIF       6.25  WETTING FRONT SUCTION
                      XKSAT        .16  HYDRAULIC CONDUCTIVITY
                      RTIMP        .00  PERCENT IMPERVIOUS AREA

 78 UI          INPUT UNITGRAPH,  26 ORDINATES,  VOLUME = 1.00
                        .0      17.1      31.1      74.1     111.1     144.2     160.6     161.1     144.1     112.7
                      87.3      67.6      52.2      40.3      31.0      24.7      18.1      13.6      11.7       8.5
                       4.2       4.2       4.2       4.2       4.2       4.2
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

                **************
                *            *
 83 KK          *    CF1     *        CNAME      1R
                *            *
                **************

 84 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

 85 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

                **************
                *            *
 86 KK          *     1R     *        CNAME      CF1
                *            *
                **************

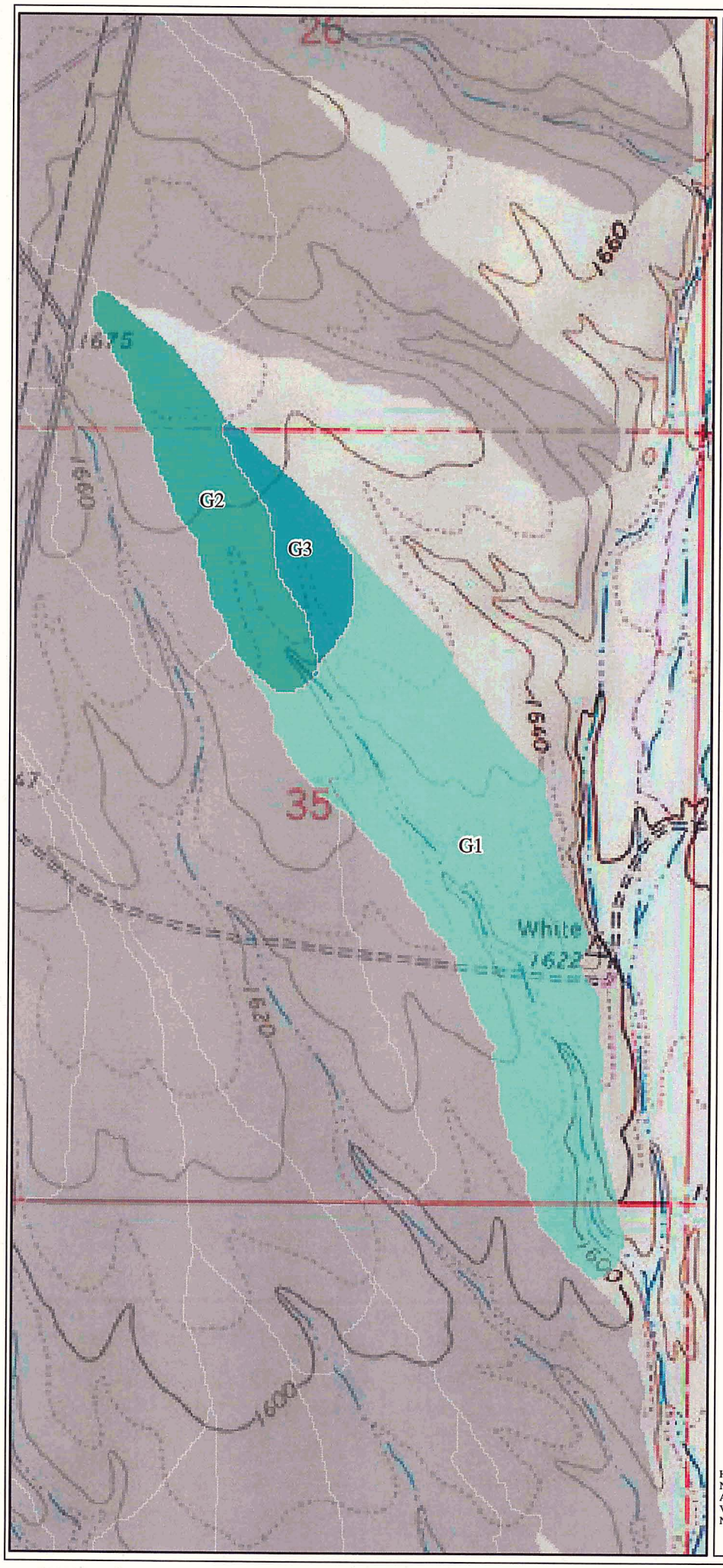
 87 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

                HYDROGRAPH ROUTING DATA

 88 RN          NO ROUTING
                                                                                  ***
1
                                    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 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	F4	248.	12.50	39.	14.	14.	.19		
+	ROUTED TO	4R	240.	12.67	39.	14.	14.	.19		
+	HYDROGRAPH AT	F3	117.	12.25	10.	4.	4.	.06		
+	2 COMBINED AT	CF3	260.	12.67	49.	18.	18.	.25		
+	ROUTED TO	3R	238.	13.08	49.	18.	18.	.25		
+	HYDROGRAPH AT	F2	331.	12.58	52.	19.	19.	.30		
+	2 COMBINED AT	CF2	433.	12.75	101.	36.	36.	.55		
+	ROUTED TO	2R	419.	13.08	100.	36.	36.	.55		
+	HYDROGRAPH AT	F1	231.	12.42	31.	11.	11.	.17		
+	2 COMBINED AT	CF1	480.	12.92	130.	47.	47.	.72		
+	ROUTED TO	1R	480.	12.92	130.	47.	47.	.72		

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



New River West FDS
Appendix D.6.G
Basin G

LEGEND

- Project Boundary
- All Other Basins

Basin G Sub-division IDs

- G1
- G2
- G3

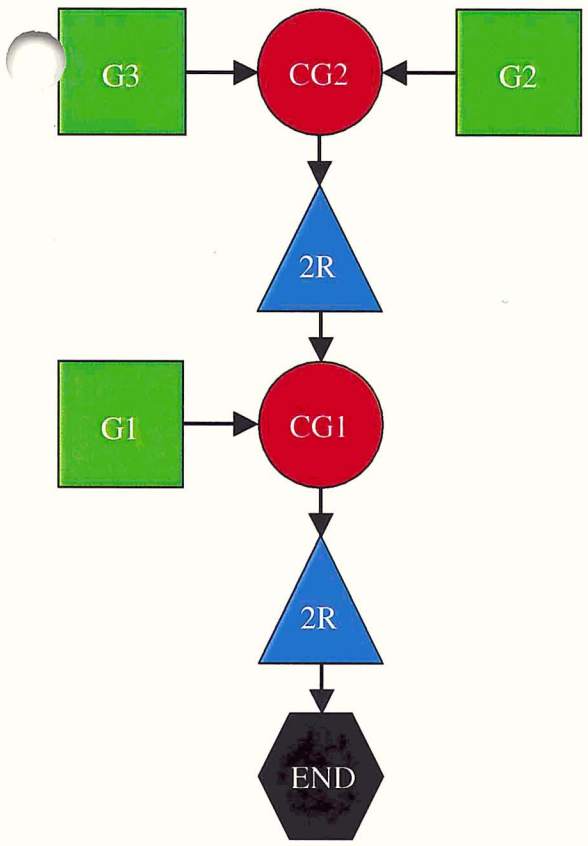
N

0 250 500 1,000
Feet

Scale: 1" = 1,000'

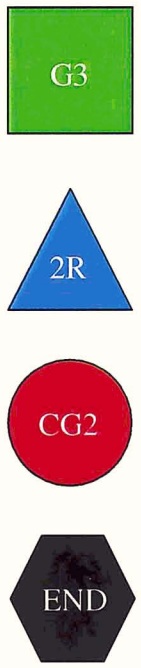
Horizontal Datum:	Data Sources:	Date: 06.09.04
NAD83 State Plane	USGS 7.5':	MCFCD Proj. No: FCD 2003-C057
AZ Central	Biscuit Flat	Proj. No: 23443706
Vertical Datum:	MCCFCD	PM: M.R.
NGVD 29		Checked By: M.M.
		Cartography: D.G.

P:\New_River_FDS\GIS\mxds\basins\nr_basinG.mxd



Basin G

HEC-1 Model Schematic



Sub-basin

Routing Reach

Concentration Point

End of Model

Basin G

100 – Year
6 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              JUN   1998           *
*            VERSION 4.1            *
*                                   *
* RUN DATE   29APR04  TIME  20:05:52 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
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  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin G - 100-Year 6-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD    3.34     0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0    0.008    0.016    0.025    0.033    0.041     0.05    0.058    0.066    0.074
 10           PC   0.087    0.099    0.118    0.138    0.216    0.377    0.834    0.911    0.931     0.95
 11           PC   0.962    0.972    0.983    0.991      1.0
 12           IN      15 28APR04       0
 13           JD    3.32      0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0    0.008    0.016    0.025    0.033    0.041     0.05    0.058    0.066    0.074
 15           PC   0.087    0.099    0.118    0.138    0.216    0.377    0.834    0.911    0.931     0.95
 16           PC   0.962    0.972    0.983    0.991      1.0
 17           IN      15 28APR04       0
 18           JD   3.297      1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0   0.0084    0.016    0.025   0.0334   0.0414   0.0504   0.0584   0.0664   0.0748
 20           PC   0.087   0.0994   0.1188    0.148   0.2304   0.4067   0.7778   0.8813   0.9186   0.9452
 21           PC  0.9572   0.9684   0.9798   0.9898      1.0
 22           IN      15 28APR04       0
 23           JD   3.206      5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0    0.011   0.0173   0.0267   0.0387    0.049   0.0593   0.0693   0.0797   0.0903
 25           PC   0.103   0.1173   0.1383   0.1827   0.2693    0.458    0.686   0.8233   0.8893   0.9293
 26           PC  0.9487    0.962   0.9743   0.9877      1.0

 27           KK      G3
 28           KO       0        0      0.0        1       22
 29           BA  0.0194
 30           LG    0.35     0.38      6.4    0.152      0.0
              * S_Graph
 31           UI     0.0    11.36     40.5    47.12    26.59    13.04     6.36      3.0     1.29     1.29

 32           KK      G2
 33           KO       0        0      0.0        1       22
 34           BA  0.0490
 35           LG    0.35     0.38      6.4    0.152      0.0
              * S_Graph
 36           UI     0.0     9.57    37.01    65.98    78.33    66.92    43.69    28.31    18.15    11.73
 37           UI    7.39     5.27     2.02     2.02     2.02      0.0

 38           KK     CG2    CNAME       2R
 39           KO       0        0      0.0        0       22
 40           HC       2    0.068
```

1 HEC-1 INPUT PAGE 2

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

 41           KK      2R    CNAME     CG2
 42           KO       0        0      0.0        0       22
```

```
43          RS       9    FLOW    -1.0     0.0
44          RC    0.07    0.05    0.07 4917.44  0.0122     0.0
            * 2R
45          RX     0.0  205.27  268.34  336.31  391.79  468.99  571.85  660.68
46          RY  1640.0  1636.2 1635.69 1634.66 1634.49  1635.1 1637.59 1639.76

47          KK      G1
48          KO       0       0     0.0       1      22
49          BA  0.1602
50          LG   0.341   0.387   6.056    0.17     0.0
            * S_Graph
51          UI     0.0   17.07   35.26   81.95  120.82  150.27  163.59  154.81  126.48   95.26
52          UI   72.78   54.84   41.59   31.45   24.34   18.09   12.62   11.69    6.18    4.15
53          UI    4.15    4.15    4.15    4.15     0.0

54          KK     CG1   CNAME      2R
55          KO       0       0     0.0       0      22
56          HC       2   0.229

57          KK      2R   CNAME     CG1
58          KO       0       0     0.0       0      22
59          RN      2R
60          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   27          G3
                .
                .
   32           .          G2
                .           .
                .           .
   38         CG2............
                V
                V
   41          2R
                .
                .
   47           .          G1
                .           .
                .           .
   54         CG1............
                V
                V
   57          2R

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   29APR04  TIME  20:05:52  *
*                                      *
****************************************

                                                    ****************************************
                                                    *                                      *
                                                    *    U.S. ARMY CORPS OF ENGINEERS      *
                                                    *    HYDROLOGIC ENGINEERING CENTER     *
                                                    *          609 SECOND STREET           *
                                                    *       DAVIS, CALIFORNIA 95616        *
                                                    *           (916) 756-1104             *
                                                    *                                      *
                                                    ****************************************

                        HEC-1 Analysis using WMS
                        New River West Tributaries FDS - FCD 2003 C057
                        Basin G - 100-Year 6-Hour Storm Event
                        April 2004

   6 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

   7 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  12 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  17 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  22 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME
```

```
  IT          HYDROGRAPH TIME DATA
                   NMIN            5  MINUTES IN COMPUTATION INTERVAL
                  IDATE      28APR 4  STARTING DATE
                  ITIME         0000  STARTING TIME
                     NQ          200  NUMBER OF HYDROGRAPH ORDINATES
                 NDDATE      28APR 4  ENDING DATE
                 NDTIME         1635  ENDING TIME
                  ICENT           19  CENTURY MARK

              COMPUTATION INTERVAL      .08 HOURS
                   TOTAL TIME BASE    16.58 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

  8 JD        INDEX STORM NO. 1
                   STRM         3.34  PRECIPITATION DEPTH
                   TRDA          .01  TRANSPOSITION DRAINAGE AREA

  9 PI         PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

 13 JD        INDEX STORM NO. 2
                   STRM         3.32  PRECIPITATION DEPTH
                   TRDA          .50  TRANSPOSITION DRAINAGE AREA

 14 PI         PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

 18 JD        INDEX STORM NO. 3
                   STRM         3.30  PRECIPITATION DEPTH
                   TRDA         1.00  TRANSPOSITION DRAINAGE AREA

 19 PI         PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

 23 JD        INDEX STORM NO. 4
                   STRM         3.21  PRECIPITATION DEPTH
                   TRDA         5.00  TRANSPOSITION DRAINAGE AREA

 24 PI         PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                  .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 27 KK    *        G3  *
          *            *
          **************

 28 KO        OUTPUT CONTROL VARIABLES
                 IPRNT            4  PRINT CONTROL
                 IPLOT            0  PLOT CONTROL
                 QSCAL           0.  HYDROGRAPH PLOT SCALE
                 IPNCH            1  PUNCH COMPUTED HYDROGRAPH
                  IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                 ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
```

```
                    ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT         .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 29 BA          SUBBASIN CHARACTERISTICS
                     TAREA          .02  SUBBASIN AREA

 30 LG          GREEN AND AMPT LOSS RATE
                    STRTL          .35  STARTING LOSS
                      DTH          .38  MOISTURE DEFICIT
                     PSIF         6.40  WETTING FRONT SUCTION
                    XKSAT          .15  HYDRAULIC CONDUCTIVITY
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

 29 UI          INPUT UNITGRAPH,  10 ORDINATES,  VOLUME = 1.00
                      .0      11.4      40.5      47.1      26.6      13.0       6.4       3.0       1.3       1.3
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

           **************
           *            *
 32 KK     *        G2  *
           *            *
           **************

 33 KO          OUTPUT CONTROL VARIABLES
                    IPRNT            4  PRINT CONTROL
                    IPLOT            0  PLOT CONTROL
                    QSCAL           0.  HYDROGRAPH PLOT SCALE
                    IPNCH            1  PUNCH COMPUTED HYDROGRAPH
                     IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT         .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 34 BA          SUBBASIN CHARACTERISTICS
                     TAREA          .05  SUBBASIN AREA

 35 LG          GREEN AND AMPT LOSS RATE
                    STRTL          .35  STARTING LOSS
                      DTH          .38  MOISTURE DEFICIT
                     PSIF         6.40  WETTING FRONT SUCTION
                    XKSAT          .15  HYDRAULIC CONDUCTIVITY
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

 34 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                      .0       9.6      37.0      66.0      78.3      66.9      43.7      28.3      18.1      11.7
                     7.4       5.3       2.0       2.0       2.0
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

           **************
           *            *
 38 KK     *       CG2  *        CNAME      2R
           *            *
           **************

 39 KO          OUTPUT CONTROL VARIABLES
                    IPRNT            4  PRINT CONTROL
                    IPLOT            0  PLOT CONTROL
                    QSCAL           0.  HYDROGRAPH PLOT SCALE
                    IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                     IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT         .083  TIME INTERVAL IN HOURS

 40 HC          HYDROGRAPH COMBINATION
                    ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

           **************
           *            *
```

```
41 KK     *        2R  *        CNAME     CG2
          *            *
          **************

42 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

43 RS          STORAGE ROUTING
                    NSTPS           9  NUMBER OF SUBREACHES
                     ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                        X         .00 WORKING R AND D COEFFICIENT

44 RC          NORMAL DEPTH CHANNEL
                      ANL        .070  LEFT OVERBANK N-VALUE
                     ANCH        .050  MAIN CHANNEL N-VALUE
                      ANR        .070  RIGHT OVERBANK N-VALUE
                    RLNTH       4917.  REACH LENGTH
                      SEL       .0122  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
46 RY        ELEVATION   1640.00   1636.20   1635.69   1634.66   1634.49   1635.10   1637.59   1639.76
45 RX        DISTANCE        .00    205.27    268.34    336.31    391.79    468.99    571.85    660.68

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.94      6.13     11.83     18.54     26.49     35.98     46.65     58.23     70.71
          OUTFLOW        .00     17.45     88.47    236.84    453.66    769.18   1172.91   1667.64   2250.30   2921.76
        ELEVATION    1634.49   1634.78   1635.07   1635.36   1635.65   1635.94   1636.23   1636.52   1636.81   1637.10

          STORAGE      84.09     98.39    113.58    129.67    146.67    164.57    183.37    203.07    223.67    245.04
          OUTFLOW    3683.58   4537.68   5486.16   6530.97   7674.32   8918.44  10265.63  11718.16  13278.34  15011.97
        ELEVATION    1637.39   1637.68   1637.97   1638.26   1638.55   1638.84   1639.13   1639.42   1639.71   1640.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     237. TO    15012.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
47 KK     *        G1  *
          *            *
          **************

48 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

49 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .16  SUBBASIN AREA

50 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .34  STARTING LOSS
                       DTH         .39  MOISTURE DEFICIT
                      PSIF        6.06  WETTING FRONT SUCTION
                     XKSAT         .17  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

49 UI          INPUT UNITGRAPH,  24 ORDINATES,  VOLUME = 1.00
                       .0      17.1      35.3      81.9     120.8     150.3     163.6     154.8     126.5      95.3
                     72.8      54.8      41.6      31.5      24.3      18.1      12.6      11.7       6.2       4.2
                      4.2       4.2       4.2       4.2

                                                  ***
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
  54 KK     *       CG1  *        CNAME      2R
            *            *
            **************

  55 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

  56 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
  57 KK     *        2R  *        CNAME      CG1
            *            *
            **************

  58 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

  59 RN          NO ROUTING
                                                                  ***
1
                                          RUNOFF SUMMARY
                                     FLOW IN CUBIC FEET PER SECOND
                                   TIME IN HOURS,  AREA IN SQUARE MILES

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

        HYDROGRAPH AT
+                            G3     54.    4.17        4.          1.          1.       .02

        HYDROGRAPH AT
+                            G2    106.    4.25        9.          3.          3.       .05

        2 COMBINED AT
+                           CG2    150.    4.17       13.          5.          5.       .07

        ROUTED TO
+                            2R     97.    4.83       13.          5.          5.       .07

        HYDROGRAPH AT
+                            G1    246.    4.42       30.         11.         11.       .16

        2 COMBINED AT
+                           CG1    249.    4.42       43.         15.         15.       .23

        ROUTED TO
+                            2R    249.    4.42       43.         15.         15.       .23

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

Basin G

100 – Year
24 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*             JUN  1998             *
*           VERSION 4.1             *
*                                   *
* RUN DATE   29APR04  TIME  20:08:46 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 756-1104           *
*                                   *
*************************************
```

```
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  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin G - 100-Year 24-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   4.278    0.01
              * 24-hour distribution
  9           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 10           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 11           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 12           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 13           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 14           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 15           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 16           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 17           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 18           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 19           IN      15 28APR04       0
 20           JD   4.064    10.0
              * 24-hour distribution
 21           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 23           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 24           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 28           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 30           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

 31           KK      G3
 32           KO       0       0     0.0       1      22
 33           BA  0.0194
 34           LG    0.35    0.38     6.4   0.152     0.0
              * S_Graph
 35           UI     0.0   11.36    40.5   47.12   26.59   13.04    6.36     3.0    1.29    1.29

 36           KK      G2
 37           KO       0       0     0.0       1      22
 38           BA  0.0490
 39           LG    0.35    0.38     6.4   0.152     0.0
              * S_Graph
 40           UI     0.0    9.57   37.01   65.98   78.33   66.92   43.69   28.31   18.15   11.73
 41           UI    7.39    5.27    2.02    2.02    2.02     0.0

 42           KK     CG2   CNAME      2R
 43           KO       0       0     0.0       0      22
 44           HC       2   0.068
```

1 HEC-1 INPUT PAGE 2

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

```
45          KK      2R   CNAME     CG2
46          KO       0       0     0.0       0      22
47          RS       9    FLOW    -1.0     0.0
48          RC    0.07    0.05    0.07 4917.44  0.0122     0.0
            * 2R
49          RX     0.0  205.27  268.34  336.31  391.79  468.99  571.85  660.68
50          RY  1640.0  1636.2 1635.69 1634.66 1634.49  1635.1 1637.59 1639.76

51          KK      G1
52          KO       0       0     0.0       1      22
53          BA  0.1602
54          LG   0.341   0.387   6.056    0.17     0.0
            * S_Graph
55          UI     0.0   17.07   35.26   81.95  120.82  150.27  163.59  154.81  126.48   95.26
56          UI   72.78   54.84   41.59   31.45   24.34   18.09   12.62   11.69    6.18    4.15
57          UI    4.15    4.15    4.15    4.15     0.0

58          KK     CG1   CNAME      1R
59          KO       0       0     0.0       0      22
60          HC       2   0.229

61          KK      1R   CNAME     CG1
62          KO       0       0     0.0       0      22
63          RN      1R
64          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   31          G3
                .
                .
   36           .          G2
                .           .
                .           .
   42         CG2............
                V
                V
   45          2R
                .
                .
   51           .          G1
                .           .
                .           .
   58         CG1............
                V
                V
   61          1R

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```

1

```
*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              JUN   1998           *
*            VERSION 4.1            *
*                                   *
*  RUN DATE   29APR04  TIME  20:08:46*
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
                    HEC-1 Analysis using WMS
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin G - 100-Year 24-Hour Storm Event
                    April 2004

  6 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

  7 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE    28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

 19 IN        TIME DATA FOR INPUT TIME SERIES
                    JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE    28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

    IT        HYDROGRAPH TIME DATA
                     NMIN          5  MINUTES IN COMPUTATION INTERVAL
                    IDATE    28APR 4  STARTING DATE
                    ITIME       0000  STARTING TIME
                       NQ        200  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE    28APR 4  ENDING DATE
                   NDTIME       1635  ENDING TIME
                    ICENT         19  CENTURY MARK
```

```
                COMPUTATION INTERVAL     .08 HOURS
                     TOTAL TIME BASE   16.58 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

  8 JD           INDEX STORM NO. 1
                       STRM        4.28  PRECIPITATION DEPTH
                       TRDA         .01  TRANSPOSITION DRAINAGE AREA

  9 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                     .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00

 20 JD           INDEX STORM NO. 2
                       STRM        4.06  PRECIPITATION DEPTH
                       TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 21 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                     .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
 31 KK        *        G3  *
              *            *
              **************

 32 KO           OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 33 BA           SUBBASIN CHARACTERISTICS
                      TAREA         .02  SUBBASIN AREA

 34 LG           GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .38  MOISTURE DEFICIT
```

```
                    PSIF        6.40  WETTING FRONT SUCTION
                   XKSAT         .15  HYDRAULIC CONDUCTIVITY
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

 33 UI          INPUT UNITGRAPH,  10 ORDINATES,  VOLUME = 1.00
                     .0      11.4      40.5      47.1      26.6      13.0       6.4       3.0       1.3       1.3
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 36 KK      *        G2  *
            *            *
            **************

 37 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 38 BA          SUBBASIN CHARACTERISTICS
                    TAREA         .05  SUBBASIN AREA

 39 LG          GREEN AND AMPT LOSS RATE
                    STRTL         .35  STARTING LOSS
                      DTH         .38  MOISTURE DEFICIT
                     PSIF        6.40  WETTING FRONT SUCTION
                   XKSAT         .15  HYDRAULIC CONDUCTIVITY
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

 38 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                     .0       9.6      37.0      66.0      78.3      66.9      43.7      28.3      18.1      11.7
                    7.4       5.3       2.0       2.0       2.0
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 42 KK      *       CG2  *        CNAME      2R
            *            *
            **************

 43 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

 44 HC          HYDROGRAPH COMBINATION
                    ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 45 KK      *        2R  *        CNAME     CG2
            *            *
            **************

 46 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
```

```
                    TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 47 RS        STORAGE ROUTING
                   NSTPS           9  NUMBER OF SUBREACHES
                    ITYP        FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC       -1.00  INITIAL CONDITION
                       X         .00 WORKING R AND D COEFFICIENT

 48 RC        NORMAL DEPTH CHANNEL
                     ANL        .070  LEFT OVERBANK N-VALUE
                    ANCH        .050  MAIN CHANNEL N-VALUE
                     ANR        .070  RIGHT OVERBANK N-VALUE
                   RLNTH       4917.  REACH LENGTH
                     SEL       .0122  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 50 RY      ELEVATION   1640.00   1636.20   1635.69   1634.66   1634.49   1635.10   1637.59   1639.76
 49 RX      DISTANCE        .00    205.27    268.34    336.31    391.79    468.99    571.85    660.68

                                                    ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.94      6.13     11.83     18.54     26.49     35.98     46.65     58.23     70.71
          OUTFLOW        .00     17.45     88.47    236.84    453.66    769.18   1172.91   1667.64   2250.30   2921.76
        ELEVATION    1634.49   1634.78   1635.07   1635.36   1635.65   1635.94   1636.23   1636.52   1636.81   1637.10

          STORAGE      84.09     98.39    113.58    129.67    146.67    164.57    183.37    203.07    223.67    245.04
          OUTFLOW    3683.58   4537.68   5486.16   6530.97   7674.32   8918.44  10265.63  11718.16  13278.34  15011.97
        ELEVATION    1637.39   1637.68   1637.97   1638.26   1638.55   1638.84   1639.13   1639.42   1639.71   1640.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      237. TO    15012.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 51 KK    *        G1  *
          *            *
          **************

 52 KO        OUTPUT CONTROL VARIABLES
                  IPRNT           4  PRINT CONTROL
                  IPLOT           0  PLOT CONTROL
                  QSCAL          0.  HYDROGRAPH PLOT SCALE
                  IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                   IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                  ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                  ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                 TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 53 BA        SUBBASIN CHARACTERISTICS
                  TAREA         .16  SUBBASIN AREA

 54 LG        GREEN AND AMPT LOSS RATE
                  STRTL         .34  STARTING LOSS
                    DTH         .39  MOISTURE DEFICIT
                   PSIF        6.06  WETTING FRONT SUCTION
                  XKSAT         .17  HYDRAULIC CONDUCTIVITY
                  RTIMP         .00  PERCENT IMPERVIOUS AREA

 53 UI        INPUT UNITGRAPH,  24 ORDINATES,  VOLUME = 1.00
                    .0      17.1      35.3      81.9     120.8     150.3     163.6     154.8     126.5      95.3
                  72.8      54.8      41.6      31.5      24.3      18.1      12.6      11.7       6.2       4.2
                   4.2       4.2       4.2       4.2

                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 58 KK    *       CG1  *        CNAME      1R
          *            *
          **************

 59 KO        OUTPUT CONTROL VARIABLES
                  IPRNT           4  PRINT CONTROL
```

```
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

 60 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 61 KK      *        1R  *        CNAME     CG1
            *            *
            **************

 62 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

 63 RN          NO ROUTING

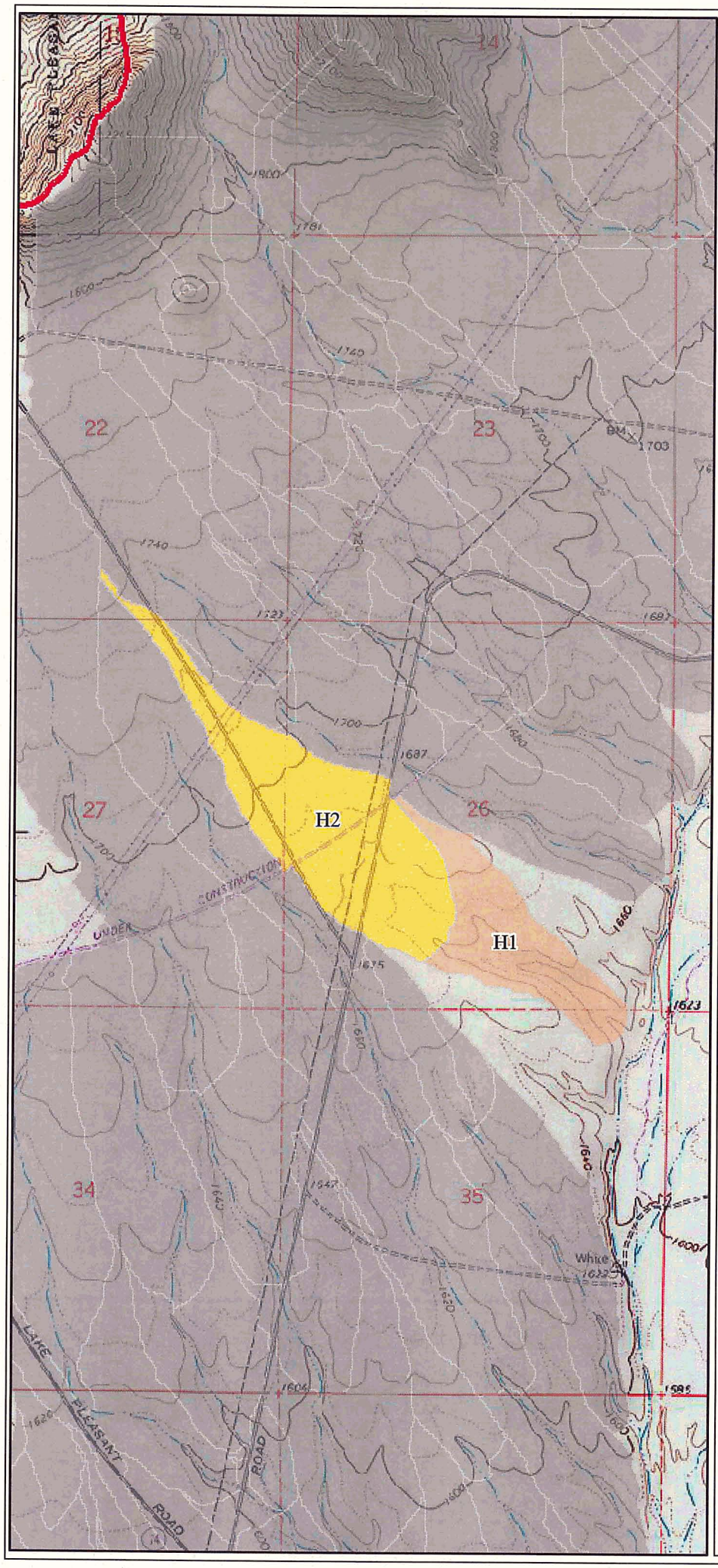
                                                          ***
1
                                    RUNOFF SUMMARY
                              FLOW IN CUBIC FEET PER SECOND
                          TIME IN HOURS,  AREA IN SQUARE MILES

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

        HYDROGRAPH AT
+                            G3      49.   12.17          4.          1.          1.       .02
        HYDROGRAPH AT
+                            G2      96.   12.25          9.          3.          3.       .05
        2 COMBINED AT
+                           CG2     137.   12.17         12.          4.          4.       .07
        ROUTED TO
+                            2R      85.   12.83         12.          4.          4.       .07
        HYDROGRAPH AT
+                            G1     224.   12.42         28.         10.         10.       .16
        2 COMBINED AT
+                           CG1     227.   12.42         40.         14.         14.       .23
        ROUTED TO
+                            1R     227.   12.42         40.         14.         14.       .23

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

New River West FDS
Appendix D.6.H
Basin H



LEGEND

- Project Boundary
- All Other Basins

Basin H Sub-basin IDs

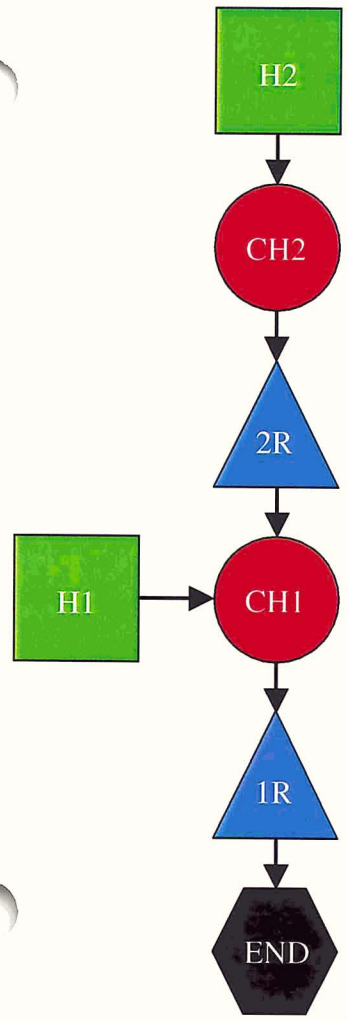
- H1
- H2

0 500 1,000 2,000
Feet

Scale: 1" = 2,000'

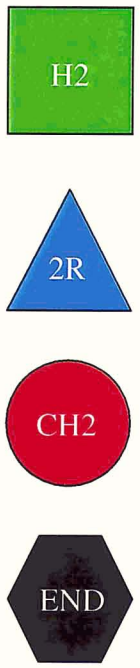
Horizontal Datum: NAD83 State Plane AZ Central Vertical Datum: NGVD 29	Data Sources: USGS 7.5': Biscuit Flat MCCFCD	Date: 06.09.04 MCFCD Proj. No: FCD 2003-C057 Proj. No: 23443706 PM: M.R. Checked By: M.M. Cartography: D.G.

P:\New_River_FDS\GIS\mxds\basins\nr_basinH.mxd



Basin H

HEC-1 Model Schematic



Sub-basin

Routing Reach

Concentration Point

End of Model

Basin H

100 – Year
6 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1**************************************
*                                    *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*             JUN   1998             *
*           VERSION 4.1              *
*                                    *
*  RUN DATE   29APR04  TIME  20:15:32*
*                                    *
**************************************
```

```
**************************************
*                                    *
*    U.S. ARMY CORPS OF ENGINEERS    *
*    HYDROLOGIC ENGINEERING CENTER   *
*          609 SECOND STREET         *
*       DAVIS, CALIFORNIA 95616      *
*          (916) 756-1104            *
*                                    *
**************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin H - 100-Year 6-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   3.349    0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 11           PC   0.962   0.972   0.983   0.991     1.0
 12           IN      15 28APR04       0
 13           JD   3.328     0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 16           PC   0.962   0.972   0.983   0.991     1.0
 17           IN      15 28APR04       0
 18           JD   3.305     1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 20           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 21           PC  0.9572  0.9684  0.9798  0.9898     1.0
 22           IN      15 28APR04       0
 23           JD   3.215     5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 25           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 26           PC  0.9487   0.962  0.9743  0.9877     1.0

 27           KK      H2
 28           KO       0       0     0.0       1      22
 29           BA  0.2329
 30           LG    0.35   0.268   8.906   0.057     0.0
              * S_Graph
 31           UI     0.0   21.84   36.11   87.01  135.78  174.76  200.69  209.33  195.45  162.67
 32           UI  126.05   99.96   78.08   61.83   46.45   37.87   29.85   23.15   16.64   14.95
 33           UI   11.27    5.32    5.32    5.32    5.32    5.32    5.32     0.0

 34           KK      2R   CNAME     CH2
 35           KO       0       0     0.0       0      22
 36           RS       6    FLOW    -1.0     0.0
 37           RC    0.07    0.05    0.07 2954.83   0.014     0.0
              * 2R
 38           RX     0.0   89.09  159.94  256.74  351.15  418.07  481.26  542.63
 39           RY  1660.1 1656.23 1651.92 1642.42 1640.86  1648.2 1654.14 1657.36

 40           KK      H1
 41           KO       0       0     0.0       1      22
 42           BA  0.1192
 43           LG    0.35   0.377   6.451   0.149     0.0
              * S_Graph
 44           UI     0.0    16.4   54.23  106.05  145.09  155.76   133.4   94.93   66.66   46.15
```

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

           45           UI   32.43   22.55   15.71   11.23    6.68    3.99    3.99    3.99     0.0

           46           KK     CH1   CNAME      1R
           47           KO       0       0     0.0       0      22
           48           HC       2   0.352

           49           KK      1R   CNAME     CH1
           50           KO       0       0     0.0       0      22
           51           RN      1R
           52           ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

    27          H2
                 V
                 V
    34          2R
                 .
                 .
    40           .          H1
                 .           .
                 .           .
    46         CH1............
                 V
                 V
    49          1R

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                    *          609 SECOND STREET           *
 *                                      *                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   29APR04  TIME  20:15:32  *                                    *           (916) 756-1104             *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************
```

```
                        HEC-1 Analysis using WMS
                        New River West Tributaries FDS - FCD 2003 C057
                        Basin H - 100-Year 6-Hour Storm Event
                        April 2004

   6 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

   7 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  12 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  17 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  22 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

     IT          HYDROGRAPH TIME DATA
                        NMIN           5  MINUTES IN COMPUTATION INTERVAL
                       IDATE     28APR 4  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE     28APR 4  ENDING DATE
                      NDTIME        1635  ENDING TIME
                       ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   16.58 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

 8 JD       INDEX STORM NO. 1
                STRM        3.35  PRECIPITATION DEPTH
                TRDA         .01  TRANSPOSITION DRAINAGE AREA

 9 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

13 JD       INDEX STORM NO. 2
                STRM        3.33  PRECIPITATION DEPTH
                TRDA         .50  TRANSPOSITION DRAINAGE AREA

14 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

18 JD       INDEX STORM NO. 3
                STRM        3.31  PRECIPITATION DEPTH
                TRDA        1.00  TRANSPOSITION DRAINAGE AREA

19 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

23 JD       INDEX STORM NO. 4
                STRM        3.21  PRECIPITATION DEPTH
                TRDA        5.00  TRANSPOSITION DRAINAGE AREA

24 PI         PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 27 KK    *     H2     *
          *            *
          **************

 28 KO       OUTPUT CONTROL VARIABLES
                IPRNT          4  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                 IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

          SUBBASIN RUNOFF DATA

 29 BA       SUBBASIN CHARACTERISTICS
                TAREA        .23  SUBBASIN AREA

 30 LG       GREEN AND AMPT LOSS RATE
                STRTL        .35  STARTING LOSS
                  DTH        .27  MOISTURE DEFICIT
                 PSIF       8.91  WETTING FRONT SUCTION
                XKSAT        .06  HYDRAULIC CONDUCTIVITY
                RTIMP        .00  PERCENT IMPERVIOUS AREA

 29 UI       INPUT UNITGRAPH,  27 ORDINATES,  VOLUME = 1.00
```

```
                .0      21.8      36.1      87.0     135.8     174.8     200.7     209.3     195.4     162.7
            126.1     100.0      78.1      61.8      46.5      37.9      29.9      23.1      16.6      14.9
             11.3       5.3       5.3       5.3       5.3       5.3       5.3
                                                      ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 34 KK    *        2R  *        CNAME     CH2
          *            *
          **************

 35 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 36 RS          STORAGE ROUTING
                      NSTPS           6  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 37 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2955.  REACH LENGTH
                        SEL       .0140  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 39 RY        ELEVATION   1660.10   1656.23   1651.92   1642.42   1640.86   1648.20   1654.14   1657.36
 38 RX        DISTANCE        .00     89.09    159.94    256.74    351.15    418.07    481.26    542.63
                                                      ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      2.42      9.32     18.07     28.16     39.59     52.37     66.49     81.99     98.93
          OUTFLOW        .00     79.91    536.61   1459.88   2798.01   4564.63   6781.44   9473.18  12879.10  16879.09
        ELEVATION    1640.86   1641.87   1642.89   1643.90   1644.91   1645.92   1646.94   1647.95   1648.96   1649.97

          STORAGE     117.31    137.15    158.69    182.10    207.64    235.63    266.25    299.46    334.33    370.80
          OUTFLOW   21426.27  26596.15  33022.46  40125.96  47878.70  56405.23  65725.85  76140.13  87535.23  99825.01
        ELEVATION    1650.99   1652.00   1653.01   1654.02   1655.04   1656.05   1657.06   1658.07   1659.09   1660.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       80. TO    99825.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 40 KK    *        H1  *
          *            *
          **************

 41 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 42 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .12  SUBBASIN AREA

 43 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
```

```
                    DTH          .38  MOISTURE DEFICIT
                   PSIF         6.45  WETTING FRONT SUCTION
                  XKSAT          .15  HYDRAULIC CONDUCTIVITY
                  RTIMP          .00  PERCENT IMPERVIOUS AREA

 42 UI        INPUT UNITGRAPH,  18 ORDINATES,  VOLUME = 1.00
                  .0      16.4      54.2     106.1     145.1     155.8     133.4      94.9      66.7      46.2
                 32.4      22.5      15.7      11.2       6.7       4.0       4.0       4.0
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 46 KK    *      CH1   *        CNAME      1R
          *            *
          **************

 47 KO        OUTPUT CONTROL VARIABLES
                 IPRNT           4  PRINT CONTROL
                 IPLOT           0  PLOT CONTROL
                 QSCAL          0.  HYDROGRAPH PLOT SCALE
                 IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                  IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                 ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                 ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                TIMINT        .083  TIME INTERVAL IN HOURS

 48 HC        HYDROGRAPH COMBINATION
                 ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 49 KK    *       1R   *        CNAME     CH1
          *            *
          **************

 50 KO        OUTPUT CONTROL VARIABLES
                 IPRNT           4  PRINT CONTROL
                 IPLOT           0  PLOT CONTROL
                 QSCAL          0.  HYDROGRAPH PLOT SCALE
                 IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                  IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                 ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                 ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 51 RN        NO ROUTING
                                                                  ***
1
                                          RUNOFF SUMMARY
                                     FLOW IN CUBIC FEET PER SECOND
                                   TIME IN HOURS,  AREA IN SQUARE MILES

                                  PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN    MAXIMUM    TIME OF
        OPERATION       STATION   FLOW    PEAK                                          AREA     STAGE    MAX STAGE
+                                                     6-HOUR     24-HOUR     72-HOUR
        HYDROGRAPH AT
+                          H2     373.    4.50         53.         19.         19.      .23
        ROUTED TO
+                          2R     364.    4.67         53.         19.         19.      .23
        HYDROGRAPH AT
+                          H1     224.    4.33         23.          8.          8.      .12
        2 COMBINED AT
+                         CH1     482.    4.50         75.         27.         27.      .35
        ROUTED TO
+                          1R     482.    4.50         75.         27.         27.      .35

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

Basin H

100 – Year
24 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUN   1998               *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   29APR04  TIME  20:17:31   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
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  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin H - 100-Year 24-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   4.339    0.01
              * 24-hour distribution
  9           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 10           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 11           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 12           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 13           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 14           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 15           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 16           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 17           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 18           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 19           IN      15 28APR04       0
 20           JD   4.122    10.0
              * 24-hour distribution
 21           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 23           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 24           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 28           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 30           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

 31           KK      H2
 32           KO       0       0     0.0       1      22
 33           BA  0.2329
 34           LG    0.35   0.268   8.906   0.057     0.0
              * S_Graph
 35           UI     0.0   21.84   36.11   87.01  135.78  174.76  200.69  209.33  195.45  162.67
 36           UI  126.05   99.96   78.08   61.83   46.45   37.87   29.85   23.15   16.64   14.95
 37           UI   11.27    5.32    5.32    5.32    5.32    5.32    5.32     0.0

 38           KK      2R   CNAME     CH2
 39           KO       0       0     0.0       0      22
 40           RS       6    FLOW    -1.0     0.0
 41           RC    0.07    0.05    0.07 2954.83   0.014     0.0
              * 2R
 42           RX     0.0   89.09  159.94  256.74  351.15  418.07  481.26  542.63
 43           RY  1660.1 1656.23 1651.92 1642.42 1640.86  1648.2 1654.14 1657.36
```

1 HEC-1 INPUT PAGE 2

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

 44           KK      H1
 45           KO       0       0     0.0       1      22
```

```
46          BA  0.1192
47          LG    0.35   0.377   6.451   0.149     0.0
            * S_Graph
48          UI     0.0    16.4   54.23  106.05  145.09  155.76   133.4   94.93   66.66   46.15
49          UI   32.43   22.55   15.71   11.23    6.68    3.99    3.99    3.99     0.0

50          KK     CH1   CNAME      1R
51          KO       0       0     0.0       0      22
52          HC       2   0.352

53          KK      1R   CNAME     CH1
54          KO       0       0     0.0       0      22
55          RN      1R
56          ZZ
1
                SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

    31          H2
                 V
                 V
    38          2R
                 .
                 .
    44           .          H1
                 .           .
                 .           .
    50         CH1............
                 V
                 V
    53          1R

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *            VERSION 4.1               *
 *                                      *
 *  RUN DATE   29APR04  TIME  20:17:31  *
 *                                      *
 ****************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*    HYDROLOGIC ENGINEERING CENTER  *
*          609 SECOND STREET        *
*       DAVIS, CALIFORNIA 95616     *
*           (916) 756-1104          *
*                                   *
*************************************
```

```
                    HEC-1 Analysis using WMS
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin H - 100-Year 24-Hour Storm Event
                    April 2004

  6 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

  7 IN        TIME DATA FOR INPUT TIME SERIES
                     JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

 19 IN        TIME DATA FOR INPUT TIME SERIES
                     JXMIN         15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME          0  STARTING TIME

    IT        HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE     28APR 4  STARTING DATE
                     ITIME        0000  STARTING TIME
                        NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE     28APR 4  ENDING DATE
                    NDTIME        1635  ENDING TIME
                     ICENT          19  CENTURY MARK

                COMPUTATION INTERVAL     .08 HOURS
                     TOTAL TIME BASE   16.58 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

  8 JD        INDEX STORM NO. 1
                    STRM        4.34  PRECIPITATION DEPTH
                    TRDA         .01  TRANSPOSITION DRAINAGE AREA
```

```
 9 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                    .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00

20 JD           INDEX STORM NO. 2
                      STRM        4.12  PRECIPITATION DEPTH
                      TRDA       10.00  TRANSPOSITION DRAINAGE AREA

21 PI           PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                    .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                    .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                    .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
31 KK       *     H2     *
            *            *
            **************

32 KO           OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

33 BA           SUBBASIN CHARACTERISTICS
                     TAREA         .23  SUBBASIN AREA

34 LG           GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .27  MOISTURE DEFICIT
                      PSIF        8.91  WETTING FRONT SUCTION
                     XKSAT         .06  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

33 UI           INPUT UNITGRAPH,  27 ORDINATES,  VOLUME = 1.00
                      .0      21.8      36.1      87.0     135.8     174.8     200.7     209.3     195.4     162.7
                    126.1     100.0      78.1      61.8      46.5      37.9      29.9      23.1      16.6      14.9
                     11.3       5.3       5.3       5.3       5.3       5.3       5.3
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            *************
```

```
          *            *
38 KK     *        2R  *        CNAME     CH2
          *            *
          **************

39 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

40 RS          STORAGE ROUTING
                    NSTPS           6  NUMBER OF SUBREACHES
                     ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                        X         .00 WORKING R AND D COEFFICIENT

41 RC          NORMAL DEPTH CHANNEL
                      ANL        .070  LEFT OVERBANK N-VALUE
                     ANCH        .050  MAIN CHANNEL N-VALUE
                      ANR        .070  RIGHT OVERBANK N-VALUE
                    RLNTH       2955.  REACH LENGTH
                      SEL       .0140  ENERGY SLOPE
                    ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
43 RY        ELEVATION   1660.10   1656.23   1651.92   1642.42   1640.86   1648.20   1654.14   1657.36
42 RX        DISTANCE        .00     89.09    159.94    256.74    351.15    418.07    481.26    542.63

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      2.42      9.32     18.07     28.16     39.59     52.37     66.49     81.99     98.93
          OUTFLOW        .00     79.91    536.61   1459.88   2798.01   4564.63   6781.44   9473.18  12879.10  16879.09
        ELEVATION    1640.86   1641.87   1642.89   1643.90   1644.91   1645.92   1646.94   1647.95   1648.96   1649.97

          STORAGE     117.31    137.15    158.69    182.10    207.64    235.63    266.25    299.46    334.33    370.80
          OUTFLOW   21426.27  26596.15  33022.46  40125.96  47878.70  56405.23  65725.85  76140.13  87535.23  99825.01
        ELEVATION    1650.99   1652.00   1653.01   1654.02   1655.04   1656.05   1657.06   1658.07   1659.09   1660.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       80. TO    99825.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
44 KK     *        H1  *
          *            *
          **************

45 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

46 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .12  SUBBASIN AREA

47 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .38  MOISTURE DEFICIT
                      PSIF        6.45  WETTING FRONT SUCTION
                     XKSAT         .15  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

46 UI          INPUT UNITGRAPH,  18 ORDINATES,  VOLUME = 1.00
                       .0      16.4      54.2     106.1     145.1     155.8     133.4      94.9      66.7      46.2
                     32.4      22.5      15.7      11.2       6.7       4.0       4.0       4.0

                                                  ***
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
  50 KK     *       CH1  *        CNAME      1R
            *            *
            **************

  51 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

  52 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
  53 KK     *        1R  *        CNAME      CH1
            *            *
            **************

  54 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

  55 RN          NO ROUTING
                                                                  ***
1
                                          RUNOFF SUMMARY
                                     FLOW IN CUBIC FEET PER SECOND
                                   TIME IN HOURS,  AREA IN SQUARE MILES

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

        HYDROGRAPH AT
+                            H2      339.   12.50          56.         20.         20.       .23

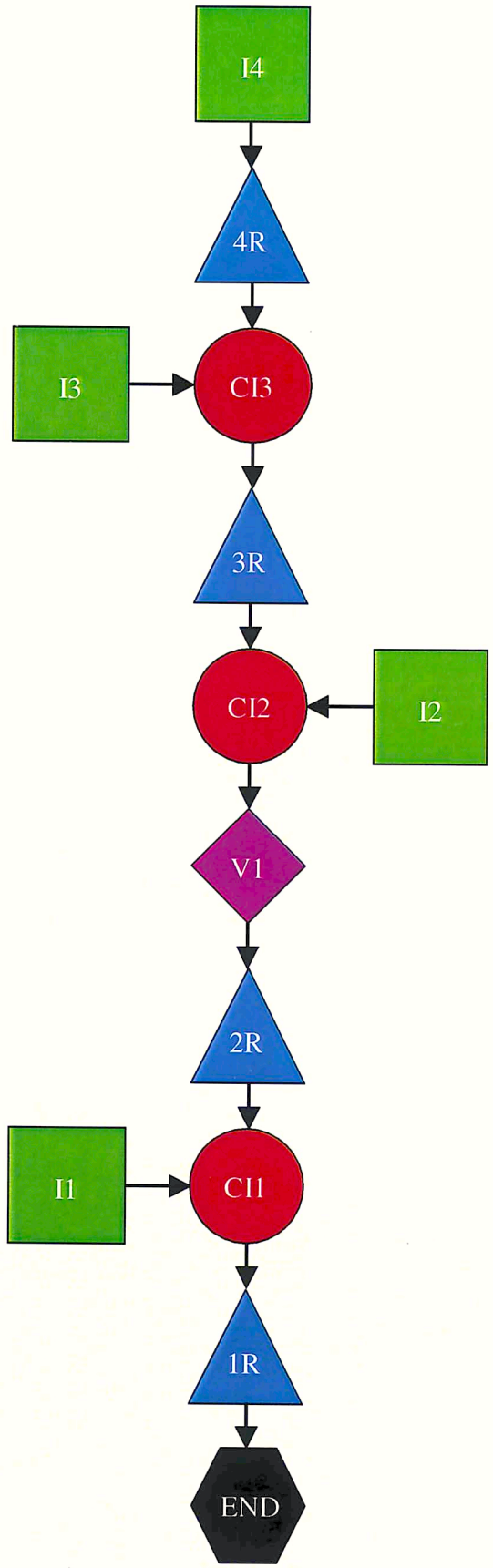
        ROUTED TO
+                            2R      332.   12.67          56.         20.         20.       .23

        HYDROGRAPH AT
+                            H1      206.   12.33          22.          8.          8.       .12

        2 COMBINED AT
+                           CH1      441.   12.50          78.         28.         28.       .35

        ROUTED TO
+                            1R      441.   12.50          78.         28.         28.       .35

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



Basin I

HEC-1 Model Schematic

Sub-basin

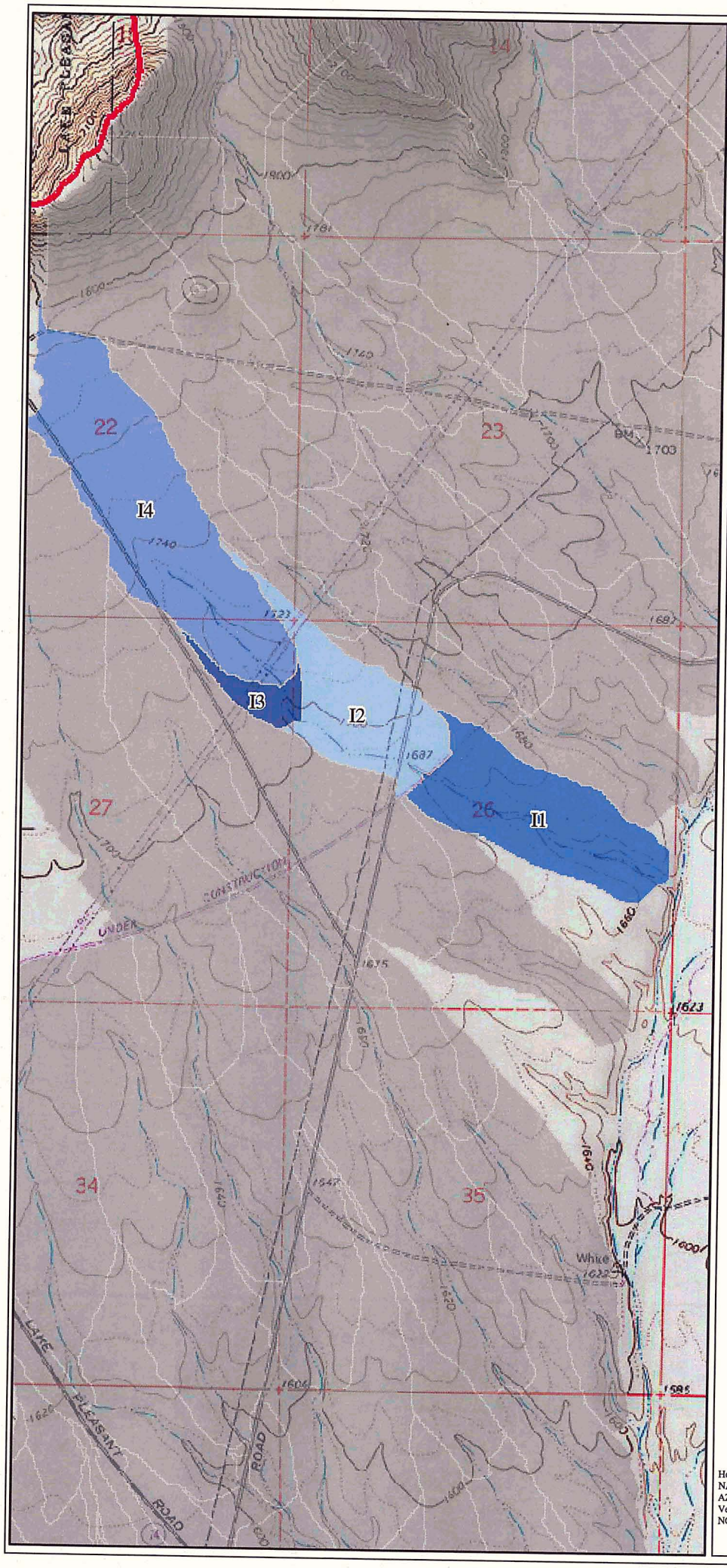
Routing Reach

Storage Reach

Concentration Point

End of Model

New River West FDS
Appendix D.6.I
Basin I



LEGEND

- Project Boundary
- All Other Basins

Basin I Sub-basin IDs

- I1
- I2
- I3
- I4

N

0 500 1,000 2,000
Feet

Scale: 1" = 2,000'

Horizontal Datum: NAD83 State Plane AZ Central Vertical Datum: NGVD 29	Data Sources: USGS 7.5': Biscuit Flat MCCFCD	Date: 06.09.04 MCFCD Proj. No: FCD 2003-C057 Proj. No: 23443706 PM: M.R. Checked By: M.M. Cartography: D.G.

P:\New_River_FDS\GIS\mxds\basins\nr_basinI.mxd

Basin I

100 – Year
6 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUN   1998               *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   26MAY04  TIME  15:28:04   *
*                                       *
*****************************************
```

```
*****************************************
*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
*****************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin I - 100-Year 6-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   3.354    0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 11           PC   0.962   0.972   0.983   0.991     1.0
 12           IN      15 28APR04       0
 13           JD   3.334     0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 16           PC   0.962   0.972   0.983   0.991     1.0
 17           IN      15 28APR04       0
 18           JD    3.31     1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 20           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 21           PC  0.9572  0.9684  0.9798  0.9898     1.0
 22           IN      15 28APR04       0
 23           JD    3.22     5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 25           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 26           PC  0.9487   0.962  0.9743  0.9877     1.0

 27           KK      I4
 28           KO       0       0     0.0       1      22
 29           BA   0.256
 30           LG   0.321   0.197  10.575   0.032     9.1
              * S_Graph
 31           UI     0.0   25.56   47.08  112.24   167.3  217.82  240.63  240.02  213.32  165.78
 32           UI  127.64   99.38   76.16   57.99   45.34    35.5   27.09   19.02    17.5   11.01
 33           UI    6.22    6.22    6.22    6.22    6.22     0.0

 34           KK      4R   CNAME     CI4
 35           KO       0       0     0.0       0      22
 36           RS       2    FLOW    -1.0     0.0
 37           RC    0.07    0.05    0.07  648.17  0.0089     0.0
              * 4R
 38           RX     0.0  197.77  428.06  483.27  542.82  723.24  904.28 1068.38
 39           RY  1711.8 1709.93 1707.25 1706.95 1706.98 1709.39 1711.06 1713.65

 40           KK      I3
 41           KO       0       0     0.0       1      22
 42           BA   0.024
 43           LG    0.35   0.197  10.952   0.026     0.0
              * S_Graph
 44           UI     0.0   11.31   42.24   55.66    36.9   19.29   10.11    5.13    2.42    1.46
```

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

 45           UI     0.0

 46           KK     CI3   CNAME      3R
 47           KO       0       0     0.0       0      22
 48           HC       2    0.28

 49           KK      3R   CNAME     CI3
 50           KO       0       0     0.0       0      22
 51           RS       4    FLOW    -1.0     0.0
 52           RC    0.07    0.05    0.07 2057.52  0.0089     0.0
              * 3R
 53           RX     0.0   92.66  197.62  217.74  289.81  467.09  611.56  745.36
 54           RY  1701.0  1701.0  1700.0 1698.66 1698.81 1698.95 1701.51 1703.25

 55           KK      I2
 56           KO       0       0     0.0       1      22
 57           BA   0.113
 58           LG    0.35   0.296   8.144   0.077     0.0
              * S_Graph
 59           UI     0.0   16.24   57.83   110.4  146.96  152.22  122.87    84.5   58.51   39.96
 60           UI    27.8   18.84   12.51    9.71    3.95    3.95    3.95    3.95     0.0

 61           KK     CI2   CNAME      2R
 62           KO       0       0     0.0       0      22
 63           HC       2   0.393

 64           KK      V1
 65           KM    (2)Barrel 6'x4'RCBC Under New River Road
              * RESERVOIR STORAGE
 66           KO       0       0     0.0       0      22
 67           RS       1    STOR     0.0     0.0
              * Area Curve I
 68           SA    0.12    0.77    1.47    2.56    3.66    5.25    7.03    9.24
              * Elevation Curve I
 69           SE  1686.0  1687.0  1688.0  1689.0  1690.0  1691.0  1692.0  1693.0
              * Discharge Curve I
 70           SQ     0.0    29.4   83.16   152.8   235.2   328.7   415.7   489.1

 71           KK      2R   CNAME     CI2
 72           KO       0       0     0.0       0      22
 73           RS       5    FLOW    -1.0     0.0
 74           RC    0.07    0.05    0.07 4096.71  0.0121     0.0
              * 2R
 75           RX     0.0  149.59   304.9  471.26  563.62  715.67  835.55 1018.41
 76           RY  1677.0 1675.57 1669.96 1663.55 1665.62  1673.1 1676.29 1680.55

 77           KK      I1
 78           KO       0       0     0.0       1      22
 79           BA  0.1520
 80           LG   0.345   0.373   6.443   0.149     0.0
              * S_Graph
 81           UI     0.0    21.1   70.72  137.98  187.51   199.8  169.53   119.4   83.98   57.53
 82           UI   40.48   28.08    19.4   14.44    7.52    5.13    5.13    5.13     0.0
```



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

 83           KK     CI1   CNAME      1R
 84           KO       0       0     0.0       0      22
 85           HC       2   0.545

 86           KK      1R   CNAME     CI1
 87           KO       0       0     0.0       0      22
 88           RN      1R
 89           ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

  27         I4
              V
              V
  34         4R
              .
              .
  40          .          I3
              .           .
              .           .
  46        CI3............
              V
              V
  49         3R
              .
              .
  55          .          I2
```

```
                .          .
                .          .
   61         CI2...........
                V
                V
   64          V1
                V
                V
   71          2R
                .
                .
   77           .          I1
                .           .
                .           .
   83         CI1...........
                V
                V
   86          1R

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                    ****************************************
 *                                      *                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                    *   U.S. ARMY CORPS OF ENGINEERS       *
 *              JUN   1998              *                    *   HYDROLOGIC ENGINEERING CENTER      *
 *           VERSION 4.1                *                    *          609 SECOND STREET           *
 *                                      *                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   26MAY04  TIME  15:28:04  *                    *           (916) 756-1104             *
 *                                      *                    *                                      *
 ****************************************                    ****************************************


                        HEC-1 Analysis using WMS
                        New River West Tributaries FDS - FCD 2003 C057
                        Basin I - 100-Year 6-Hour Storm Event
                        April 2004

   6 IO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE

   7 IN          TIME DATA FOR INPUT TIME SERIES
                        JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  12 IN          TIME DATA FOR INPUT TIME SERIES
                        JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  17 IN          TIME DATA FOR INPUT TIME SERIES
                        JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

  22 IN          TIME DATA FOR INPUT TIME SERIES
                        JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

     IT          HYDROGRAPH TIME DATA
                         NMIN           5  MINUTES IN COMPUTATION INTERVAL
                        IDATE     28APR 4  STARTING DATE
                        ITIME        0000  STARTING TIME
                           NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE     28APR 4  ENDING DATE
                      NDTIME        1635  ENDING TIME
                       ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   16.58 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

   8 JD          INDEX STORM NO. 1
                       STRM        3.35  PRECIPITATION DEPTH
                       TRDA         .01  TRANSPOSITION DRAINAGE AREA

   9 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

13 JD        INDEX STORM NO. 2
                STRM        3.33  PRECIPITATION DEPTH
                TRDA         .50  TRANSPOSITION DRAINAGE AREA

14 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

18 JD        INDEX STORM NO. 3
                STRM        3.31  PRECIPITATION DEPTH
                TRDA        1.00  TRANSPOSITION DRAINAGE AREA

19 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

23 JD        INDEX STORM NO. 4
                STRM        3.22  PRECIPITATION DEPTH
                TRDA        5.00  TRANSPOSITION DRAINAGE AREA

24 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
27 KK     *        I4  *
          *            *
          **************

28 KO        OUTPUT CONTROL VARIABLES
                IPRNT           4  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE
                IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                 IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT        .083  TIME INTERVAL IN HOURS

           SUBBASIN RUNOFF DATA

29 BA        SUBBASIN CHARACTERISTICS
                TAREA         .26  SUBBASIN AREA

30 LG        GREEN AND AMPT LOSS RATE
                STRTL         .32  STARTING LOSS
                  DTH         .20  MOISTURE DEFICIT
                 PSIF       10.57  WETTING FRONT SUCTION
                XKSAT         .03  HYDRAULIC CONDUCTIVITY
                RTIMP        9.10  PERCENT IMPERVIOUS AREA

29 UI        INPUT UNITGRAPH,  25 ORDINATES,  VOLUME = 1.00
                 .0      25.6      47.1     112.2     167.3     217.8     240.6     240.0     213.3     165.8
               127.6     99.4      76.2      58.0      45.3      35.5      27.1      19.0      17.5      11.0
                 6.2      6.2       6.2       6.2       6.2

                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
          **************
          *            *
 34 KK    *        4R  *        CNAME     CI4
          *            *
          **************

 35 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 36 RS          STORAGE ROUTING
                    NSTPS           2  NUMBER OF SUBREACHES
                     ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                        X         .00 WORKING R AND D COEFFICIENT

 37 RC          NORMAL DEPTH CHANNEL
                      ANL        .070  LEFT OVERBANK N-VALUE
                     ANCH        .050  MAIN CHANNEL N-VALUE
                      ANR        .070  RIGHT OVERBANK N-VALUE
                    RLNTH        648.  REACH LENGTH
                      SEL       .0089  ENERGY SLOPE
                    ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 39 RY        ELEVATION   1711.80   1709.93   1707.25   1706.95   1706.98   1709.39   1711.06   1713.65
 38 RX        DISTANCE        .00    197.77    428.06    483.27    542.82    723.24    904.28   1068.38

                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .53      1.43      2.63      4.12      5.92      8.01     10.40     13.12     16.21
          OUTFLOW        .00     39.63    169.96    391.16    713.15   1146.97   1703.71   2403.53   3357.68   4469.89
        ELEVATION    1706.95   1707.30   1707.66   1708.01   1708.36   1708.71   1709.07   1709.42   1709.77   1710.12

          STORAGE      19.69     23.57     27.83     32.43     37.34     42.42     47.62     52.93     58.36     63.91
          OUTFLOW    5756.96   7237.77   8928.62  10840.56  13012.67  15537.64  18276.73  21227.44  24388.01  27757.38
        ELEVATION    1710.48   1710.83   1711.18   1711.53   1711.89   1712.24   1712.59   1712.95   1713.30   1713.65

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      170. TO    27757.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 40 KK    *        I3  *
          *            *
          **************

 41 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 42 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .02  SUBBASIN AREA

 43 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .20  MOISTURE DEFICIT
                      PSIF       10.95  WETTING FRONT SUCTION
                     XKSAT         .03  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 42 UI          INPUT UNITGRAPH,  10 ORDINATES,  VOLUME =  .99
                      .0      11.3      42.2      55.7      36.9      19.3      10.1       5.1       2.4       1.5
```

***

*** ***

```
          **************
          *            *
46 KK     *     CI3    *       CNAME      3R
          *            *
          **************

47 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

48 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
```

***

*** ***

```
          **************
          *            *
49 KK     *      3R    *       CNAME      CI3
          *            *
          **************

50 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

51 RS          STORAGE ROUTING
                     NSTPS           4  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

52 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       2058.  REACH LENGTH
                       SEL       .0089  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
```

CROSS-SECTION DATA

--- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---

54 RY	ELEVATION	1701.00	1701.00	1700.00	1698.66	1698.81	1698.95	1701.51	1703.25
53 RX	DISTANCE	.00	92.66	197.62	217.74	289.81	467.09	611.56	745.36

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.84	3.73	6.88	10.22	13.77	17.54	21.71	26.33	31.40
OUTFLOW	.00	10.22	99.20	264.99	493.90	781.50	1129.50	1541.58	2016.92	2558.29
ELEVATION	1698.66	1698.90	1699.14	1699.38	1699.63	1699.87	1700.11	1700.35	1700.59	1700.83
STORAGE	37.22	44.00	50.93	58.06	65.40	72.95	80.71	88.69	96.88	105.28
OUTFLOW	3153.80	3872.42	4672.99	5547.59	6502.98	7538.04	8652.08	9844.74	11115.85	12465.40
ELEVATION	1701.08	1701.32	1701.56	1701.80	1702.04	1702.28	1702.53	1702.77	1703.01	1703.25

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 494. TO 12465.
THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** ***

```
          **************
          *            *
 55 KK    *        I2  *
          *            *
          **************

 56 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 57 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .11  SUBBASIN AREA

 58 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .30  MOISTURE DEFICIT
                       PSIF        8.14  WETTING FRONT SUCTION
                      XKSAT         .08  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 57 UI          INPUT UNITGRAPH,  18 ORDINATES,  VOLUME = 1.00
                        .0      16.2      57.8     110.4     147.0     152.2     122.9      84.5      58.5      40.0
                      27.8      18.8      12.5       9.7       4.0       4.0       4.0       4.0
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 61 KK    *       CI2  *        CNAME      2R
          *            *
          **************

 62 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 63 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 64 KK    *        V1  *
          *            *
          **************
                     (2)Barrel 6'x4'RCBC Under New River Road

 66 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 67 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC         .00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT
```

```
 68 SA              AREA          .1        .8       1.5       2.6       3.7       5.3       7.0       9.2

 69 SE         ELEVATION     1686.00   1687.00   1688.00   1689.00   1690.00   1691.00   1692.00   1693.00

 70 SQ         DISCHARGE          0.       29.       83.      153.      235.      329.      416.      489.

                                                                 ***

                                                COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00       .40      1.50      3.49      6.58     11.01     17.13     25.24
        ELEVATION    1686.00   1687.00   1688.00   1689.00   1690.00   1691.00   1692.00   1693.00


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 71 KK    *        2R  *        CNAME     CI2
          *            *
          **************

 72 KO         OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 73 RS         STORAGE ROUTING
                     NSTPS           5  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 74 RC         NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       4097.  REACH LENGTH
                       SEL       .0121  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                                CROSS-SECTION DATA
                                 --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 76 RY         ELEVATION   1677.00   1675.57   1669.96   1663.55   1665.62   1673.10   1676.29   1680.55
 75 RX         DISTANCE        .00    149.59    304.90    471.26    563.62    715.67    835.55   1018.41

                                                                 ***

                                                COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      2.66     10.63     23.48     39.91     59.82     83.22    110.10    140.52    174.54
          OUTFLOW        .00     54.16    343.87   1038.80   2181.63   3810.19   5979.63   8743.73  12492.79  16986.49
        ELEVATION    1663.55   1664.44   1665.34   1666.23   1667.13   1668.02   1668.92   1669.81   1670.71   1671.60

          STORAGE     212.18    253.51    299.46    350.32    407.02    474.00    548.39    626.01    706.87    790.96
          OUTFLOW   22197.87  28415.05  35991.99  44495.47  53719.62  64064.49  76409.58  90044.81 104941.80 121101.40
        ELEVATION    1672.50   1673.39   1674.29   1675.18   1676.08   1676.97   1677.87   1678.76   1679.66   1680.55


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     1039. TO   121101.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 77 KK    *        I1  *
          *            *
          **************

 78 KO         OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
```

```
                    TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

  79 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .15  SUBBASIN AREA

  80 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .34  STARTING LOSS
                       DTH         .37  MOISTURE DEFICIT
                      PSIF        6.44  WETTING FRONT SUCTION
                     XKSAT         .15  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

  79 UI          INPUT UNITGRAPH,  18 ORDINATES,  VOLUME = 1.00
                       .0      21.1      70.7     138.0     187.5     199.8     169.5     119.4      84.0      57.5
                     40.5      28.1      19.4      14.4       7.5       5.1       5.1       5.1

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  83 KK     *       CI1  *        CNAME      1R
            *            *
            **************

  84 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


  85 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
  86 KK     *        1R  *        CNAME     CI1
            *            *
            **************

  87 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

  88 RN          NO ROUTING

                                                                  ***
1
                                                  RUNOFF SUMMARY
                                             FLOW IN CUBIC FEET PER SECOND
                                            TIME IN HOURS,  AREA IN SQUARE MILES

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

        HYDROGRAPH AT
+                            I4         460.    4.42          67.         24.         24.        .26

        ROUTED TO
+                            4R         456.    4.50          67.         24.         24.        .26

        HYDROGRAPH AT
+                            I3          73.    4.17           6.          2.          2.        .02
```

	2 COMBINED AT							
+		CI3	473.	4.50	73.	26.	26.	.28
	ROUTED TO							
+		3R	458.	4.67	73.	26.	26.	.28
	HYDROGRAPH AT							
+		I2	235.	4.33	25.	9.	9.	.11
	2 COMBINED AT							
+		CI2	577.	4.50	97.	35.	35.	.39
	ROUTED TO							
+		V1	378.	4.92	97.	35.	35.	.39
	ROUTED TO							
+		2R	373.	5.17	97.	35.	35.	.39
	HYDROGRAPH AT							
+		I1	289.	4.33	29.	11.	11.	.15
	2 COMBINED AT							
+		CI1	383.	5.08	126.	46.	46.	.55
	ROUTED TO							
+		1R	383.	5.08	126.	46.	46.	.55

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

Basin I

100 – Year
24 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   26MAY04  TIME  15:27:13  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
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  HEC-1 Analysis using WMS
    2           ID  New River West Tributaries FDS - FCD 2003 C057
    3           ID  Basin I - 100-Year 24-Hour Storm Event
    4           ID  April 2004
                *DIAGRAM
    5           IT       5 28APR04       0     200
    6           IO       4
    7           IN      15 28APR04       0
    8           JD    4.38    0.01
                * 24-hour distribution
    9           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
   10           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
   11           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
   12           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
   13           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
   14           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
   15           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
   16           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
   17           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
   18           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
   19           IN      15 28APR04       0
   20           JD   4.161    10.0
                * 24-hour distribution
   21           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
   22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
   23           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
   24           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
   25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
   26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
   27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
   28           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
   29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
   30           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

   31           KK      I4
   32           KO       0       0     0.0       1      22
   33           BA   0.256
   34           LG   0.321   0.197  10.575   0.032     9.1
                * S_Graph
   35           UI     0.0   25.56   47.08  112.24   167.3  217.82  240.63  240.02  213.32  165.78
   36           UI  127.64   99.38   76.16   57.99   45.34    35.5   27.09   19.02    17.5   11.01
   37           UI    6.22    6.22    6.22    6.22    6.22     0.0

   38           KK      4R   CNAME     CI4
   39           KO       0       0     0.0       0      22
   40           RS       2    FLOW    -1.0     0.0
   41           RC    0.07    0.05    0.07  648.17  0.0089     0.0
                * 4R
   42           RX     0.0  197.77  428.06  483.27  542.82  723.24  904.28 1068.38
   43           RY  1711.8 1709.93 1707.25 1706.95 1706.98 1709.39 1711.06 1713.65
1                                    HEC-1 INPUT                                    PAGE  2

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

```
 44          KK      I3
 45          KO       0       0     0.0       1      22
 46          BA   0.024
 47          LG    0.35   0.197  10.952   0.026     0.0
             * S_Graph
 48          UI     0.0   11.31   42.24   55.66    36.9   19.29   10.11    5.13    2.42    1.46
 49          UI     0.0

 50          KK     CI3   CNAME      3R
 51          KO       0       0     0.0       0      22
 52          HC       2    0.28

 53          KK      3R   CNAME     CI3
 54          KO       0       0     0.0       0      22
 55          RS       4    FLOW    -1.0     0.0
 56          RC    0.07    0.05    0.07 2057.52  0.0089     0.0
             * 3R
 57          RX     0.0   92.66  197.62  217.74  289.81  467.09  611.56  745.36
 58          RY  1701.0  1701.0  1700.0 1698.66 1698.81 1698.95 1701.51 1703.25

 59          KK      I2
 60          KO       0       0     0.0       1      22
 61          BA   0.113
 62          LG    0.35   0.296   8.144   0.077     0.0
             * S_Graph
 63          UI     0.0   16.24   57.83   110.4  146.96  152.22  122.87    84.5   58.51   39.96
 64          UI    27.8   18.84   12.51    9.71    3.95    3.95    3.95    3.95     0.0

 65          KK     CI2   CNAME      2R
 66          KO       0       0     0.0       0      22
 67          HC       2   0.393

 68          KK      V1
 69          KM    (2)Barrel 6'x4'RCBC Under New River Road
             * RESERVOIR STORAGE
 70          KO       0       0     0.0       0      22
 71          RS       1    STOR     0.0     0.0
             * Area Curve I
 72          SA    0.12    0.77    1.47    2.56    3.66    5.25    7.03    9.24
             * Elevation Curve I
 73          SE  1686.0  1687.0  1688.0  1689.0  1690.0  1691.0  1692.0  1693.0
             * Discharge Curve I
 74          SQ     0.0    29.4   83.16   152.8   235.2   328.7   415.7   489.1

 75          KK      2R   CNAME     CI2
 76          KO       0       0     0.0       0      22
 77          RS       5    FLOW    -1.0     0.0
 78          RC    0.07    0.05    0.07 4096.71  0.0121     0.0
             * 2R
 79          RX     0.0  149.59   304.9  471.26  563.62  715.67  835.55 1018.41
 80          RY  1677.0 1675.57 1669.96 1663.55 1665.62  1673.1 1676.29 1680.55
1                                          HEC-1 INPUT                                                    PAGE  3

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


 81          KK      I1
 82          KO       0       0     0.0       1      22
 83          BA  0.1520
 84          LG   0.345   0.373   6.443   0.149     0.0
             * S_Graph
 85          UI     0.0    21.1   70.72  137.98  187.51   199.8  169.53   119.4   83.98   57.53
 86          UI   40.48   28.08    19.4   14.44    7.52    5.13    5.13    5.13     0.0

 87          KK     CI1   CNAME      1R
 88          KO       0       0     0.0       0      22
 89          HC       2   0.545

 90          KK      1R   CNAME     CI1
 91          KO       0       0     0.0       0      22
 92          RN      1R
 93          ZZ
1
             SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

  31          I4
               V
               V
  38          4R
               .
               .
  44           .          I3
               .           .
               .           .
  50         CI3............
               V
               V
  53          3R
               .
```

```
                .
 59             .          I2
                .           .
                .           .
 65          CI2............
               V
               V
 68           V1
               V
               V
 75           2R
                .
                .
 81             .          I1
                .           .
                .           .
 87          CI1............
               V
               V
 90           1R

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   26MAY04  TIME  15:27:13  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
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                        HEC-1 Analysis using WMS
                        New River West Tributaries FDS - FCD 2003 C057
                        Basin I - 100-Year 24-Hour Storm Event
                        April 2004

  6 IO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

  7 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN         15  TIME INTERVAL IN MINUTES
                    JXDATE     28APR 4  STARTING DATE
                    JXTIME          0  STARTING TIME

 19 IN          TIME DATA FOR INPUT TIME SERIES
                      JXMIN         15  TIME INTERVAL IN MINUTES
                    JXDATE     28APR 4  STARTING DATE
                    JXTIME          0  STARTING TIME

    IT          HYDROGRAPH TIME DATA
                       NMIN          5  MINUTES IN COMPUTATION INTERVAL
                      IDATE     28APR 4  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE     28APR 4  ENDING DATE
                     NDTIME        1635  ENDING TIME
                      ICENT          19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   16.58 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

  8 JD          INDEX STORM NO. 1
                       STRM        4.38  PRECIPITATION DEPTH
                       TRDA         .01  TRANSPOSITION DRAINAGE AREA

  9 PI            PRECIPITATION PATTERN
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                    .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
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                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00

 20 JD        INDEX STORM NO. 2
                 STRM        4.16  PRECIPITATION DEPTH
                 TRDA       10.00  TRANSPOSITION DRAINAGE AREA

 21 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00

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          *            *
 31 KK    *        I4  *
          *            *
          **************

 32 KO        OUTPUT CONTROL VARIABLES
                IPRNT           4  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE
                IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                 IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 33 BA        SUBBASIN CHARACTERISTICS
                TAREA         .26  SUBBASIN AREA

 34 LG        GREEN AND AMPT LOSS RATE
                STRTL         .32  STARTING LOSS
                  DTH         .20  MOISTURE DEFICIT
                 PSIF       10.57  WETTING FRONT SUCTION
                XKSAT         .03  HYDRAULIC CONDUCTIVITY
                RTIMP        9.10  PERCENT IMPERVIOUS AREA

 33 UI        INPUT UNITGRAPH,  25 ORDINATES,  VOLUME = 1.00
                  .0      25.6      47.1     112.2     167.3     217.8     240.6     240.0     213.3     165.8
               127.6      99.4      76.2      58.0      45.3      35.5      27.1      19.0      17.5      11.0
                 6.2       6.2       6.2       6.2       6.2
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 38 KK    *        4R  *        CNAME     CI4
          *            *
          **************

 39 KO        OUTPUT CONTROL VARIABLES
                IPRNT           4  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE
                IPNCH           0  PUNCH COMPUTED HYDROGRAPH
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                    IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 40 RS        STORAGE ROUTING
                  NSTPS           2  NUMBER OF SUBREACHES
                   ITYP        FLOW  TYPE OF INITIAL CONDITION
                 RSVRIC       -1.00  INITIAL CONDITION
                      X         .00 WORKING R AND D COEFFICIENT

 41 RC        NORMAL DEPTH CHANNEL
                    ANL        .070  LEFT OVERBANK N-VALUE
                   ANCH        .050  MAIN CHANNEL N-VALUE
                    ANR        .070  RIGHT OVERBANK N-VALUE
                  RLNTH        648.  REACH LENGTH
                    SEL       .0089  ENERGY SLOPE
                  ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                        CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 43 RY       ELEVATION   1711.80   1709.93   1707.25   1706.95   1706.98   1709.39   1711.06   1713.65
 42 RX       DISTANCE        .00    197.77    428.06    483.27    542.82    723.24    904.28   1068.38

                                                          ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .53      1.43      2.63      4.12      5.92      8.01     10.40     13.12     16.21
          OUTFLOW        .00     39.63    169.96    391.16    713.15   1146.97   1703.71   2403.53   3357.68   4469.89
        ELEVATION    1706.95   1707.30   1707.66   1708.01   1708.36   1708.71   1709.07   1709.42   1709.77   1710.12

          STORAGE      19.69     23.57     27.83     32.43     37.34     42.42     47.62     52.93     58.36     63.91
          OUTFLOW    5756.96   7237.77   8928.62  10840.56  13012.67  15537.64  18276.73  21227.44  24388.01  27757.38
        ELEVATION    1710.48   1710.83   1711.18   1711.53   1711.89   1712.24   1712.59   1712.95   1713.30   1713.65


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      170. TO    27757.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 44 KK      *        I3  *
            *            *
            **************

 45 KO        OUTPUT CONTROL VARIABLES
                  IPRNT           4  PRINT CONTROL
                  IPLOT           0  PLOT CONTROL
                  QSCAL          0.  HYDROGRAPH PLOT SCALE
                  IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                   IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                  ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                  ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                 TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 46 BA        SUBBASIN CHARACTERISTICS
                  TAREA         .02  SUBBASIN AREA

 47 LG        GREEN AND AMPT LOSS RATE
                  STRTL         .35  STARTING LOSS
                    DTH         .20  MOISTURE DEFICIT
                   PSIF       10.95  WETTING FRONT SUCTION
                  XKSAT         .03  HYDRAULIC CONDUCTIVITY
                  RTIMP         .00  PERCENT IMPERVIOUS AREA

 46 UI        INPUT UNITGRAPH,  10 ORDINATES,  VOLUME =  .99
                   .0      11.3      42.2      55.7      36.9      19.3      10.1       5.1       2.4       1.5

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


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            *            *
 50 KK      *       CI3  *        CNAME      3R
            *            *
            **************
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 51 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 52 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 53 KK    *        3R  *        CNAME     CI3
          *            *
          **************

 54 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 55 RS          STORAGE ROUTING
                      NSTPS           4  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 56 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2058.  REACH LENGTH
                        SEL       .0089  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 58 RY        ELEVATION   1701.00   1701.00   1700.00   1698.66   1698.81   1698.95   1701.51   1703.25
 57 RX        DISTANCE        .00     92.66    197.62    217.74    289.81    467.09    611.56    745.36
                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .84      3.73      6.88     10.22     13.77     17.54     21.71     26.33     31.40
          OUTFLOW        .00     10.22     99.20    264.99    493.90    781.50   1129.50   1541.58   2016.92   2558.29
        ELEVATION    1698.66   1698.90   1699.14   1699.38   1699.63   1699.87   1700.11   1700.35   1700.59   1700.83

          STORAGE      37.22     44.00     50.93     58.06     65.40     72.95     80.71     88.69     96.88    105.28
          OUTFLOW    3153.80   3872.42   4672.99   5547.59   6502.98   7538.04   8652.08   9844.74  11115.85  12465.40
        ELEVATION    1701.08   1701.32   1701.56   1701.80   1702.04   1702.28   1702.53   1702.77   1703.01   1703.25

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      494. TO    12465.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 59 KK    *         I2 *
          *            *
          **************

 60 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
```

```
                    IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 61 BA        SUBBASIN CHARACTERISTICS
                   TAREA         .11  SUBBASIN AREA

 62 LG        GREEN AND AMPT LOSS RATE
                   STRTL         .35  STARTING LOSS
                     DTH         .30  MOISTURE DEFICIT
                    PSIF        8.14  WETTING FRONT SUCTION
                   XKSAT         .08  HYDRAULIC CONDUCTIVITY
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

 61 UI        INPUT UNITGRAPH,  18 ORDINATES,  VOLUME = 1.00
                      .0      16.2      57.8     110.4     147.0     152.2     122.9      84.5      58.5      40.0
                    27.8      18.8      12.5       9.7       4.0       4.0       4.0       4.0

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 65 KK    *       CI2  *        CNAME      2R
          *            *
          **************

 66 KO        OUTPUT CONTROL VARIABLES
                   IPRNT           4  PRINT CONTROL
                   IPLOT           0  PLOT CONTROL
                   QSCAL          0.  HYDROGRAPH PLOT SCALE
                   IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                    IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT        .083  TIME INTERVAL IN HOURS

 67 HC        HYDROGRAPH COMBINATION
                   ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 68 KK    *        V1  *
          *            *
          **************
                        (2)Barrel 6'x4'RCBC Under New River Road

 70 KO        OUTPUT CONTROL VARIABLES
                   IPRNT           4  PRINT CONTROL
                   IPLOT           0  PLOT CONTROL
                   QSCAL          0.  HYDROGRAPH PLOT SCALE
                   IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                    IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 71 RS        STORAGE ROUTING
                   NSTPS           1  NUMBER OF SUBREACHES
                    ITYP        STOR  TYPE OF INITIAL CONDITION
                  RSVRIC         .00  INITIAL CONDITION
                       X         .00 WORKING R AND D COEFFICIENT

 72 SA             AREA          .1        .8       1.5       2.6       3.7       5.3       7.0       9.2

 73 SE        ELEVATION     1686.00   1687.00   1688.00   1689.00   1690.00   1691.00   1692.00   1693.00

 74 SQ        DISCHARGE          0.       29.       83.      153.      235.      329.      416.      489.

                                                                  ***

                                                COMPUTED STORAGE-ELEVATION DATA

          STORAGE         .00       .40      1.50      3.49      6.58     11.01     17.13     25.24
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ELEVATION    1686.00   1687.00   1688.00   1689.00   1690.00   1691.00   1692.00   1693.00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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            *            *
 75 KK      *        2R  *        CNAME     CI2
            *            *
            **************

 76 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 77 RS          STORAGE ROUTING
                     NSTPS           5  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 78 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       4097.  REACH LENGTH
                       SEL       .0121  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 80 RY        ELEVATION   1677.00   1675.57   1669.96   1663.55   1665.62   1673.10   1676.29   1680.55
 79 RX        DISTANCE        .00    149.59    304.90    471.26    563.62    715.67    835.55   1018.41

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      2.66     10.63     23.48     39.91     59.82     83.22    110.10    140.52    174.54
          OUTFLOW        .00     54.16    343.87   1038.80   2181.63   3810.19   5979.63   8743.73  12492.79  16986.49
        ELEVATION    1663.55   1664.44   1665.34   1666.23   1667.13   1668.02   1668.92   1669.81   1670.71   1671.60

          STORAGE     212.18    253.51    299.46    350.32    407.02    474.00    548.39    626.01    706.87    790.96
          OUTFLOW   22197.87  28415.05  35991.99  44495.47  53719.62  64064.49  76409.58  90044.81 104941.80 121101.40
        ELEVATION    1672.50   1673.39   1674.29   1675.18   1676.08   1676.97   1677.87   1678.76   1679.66   1680.55

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     1039. TO   121101.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 81 KK      *        I1  *
            *            *
            **************

 82 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 83 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .15  SUBBASIN AREA

 84 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .34  STARTING LOSS
                       DTH         .37  MOISTURE DEFICIT
                      PSIF        6.44  WETTING FRONT SUCTION
```

```
                    XKSAT          .15  HYDRAULIC CONDUCTIVITY
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

 83 UI          INPUT UNITGRAPH,  18 ORDINATES,  VOLUME = 1.00
                      .0      21.1      70.7     138.0     187.5     199.8     169.5     119.4      84.0      57.5
                    40.5      28.1      19.4      14.4       7.5       5.1       5.1       5.1
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 87 KK      *       CI1  *        CNAME      1R
            *            *
            **************

 88 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

 89 HC          HYDROGRAPH COMBINATION
                    ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 90 KK      *        1R  *        CNAME     CI1
            *            *
            **************

 91 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

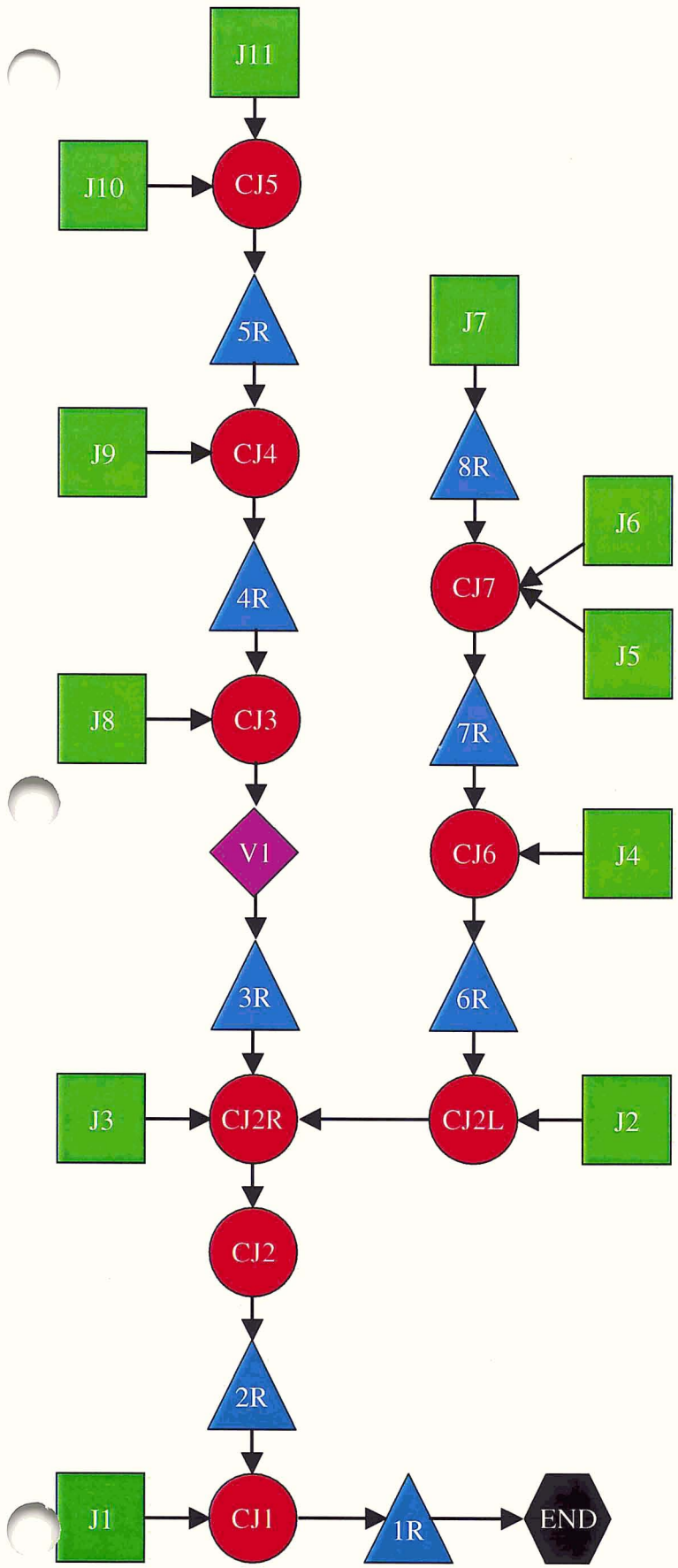
              HYDROGRAPH ROUTING DATA

 92 RN          NO ROUTING
                                                                  ***
1
                                          RUNOFF SUMMARY
                                     FLOW IN CUBIC FEET PER SECOND
                                  TIME IN HOURS,  AREA IN SQUARE MILES

                                   PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
        OPERATION       STATION    FLOW    PEAK                                          AREA      STAGE     MAX STAGE
+                                                      6-HOUR     24-HOUR     72-HOUR
        HYDROGRAPH AT
+                          I4      413.   12.42         75.         28.         28.       .26
        ROUTED TO
+                          4R      409.   12.50         75.         28.         28.       .26
        HYDROGRAPH AT
+                          I3       66.   12.17          7.          3.          3.       .02
        2 COMBINED AT
+                         CI3      426.   12.50         82.         31.         31.       .28
        ROUTED TO
+                          3R      412.   12.67         82.         30.         30.       .28
        HYDROGRAPH AT
+                          I2      216.   12.25         26.          9.          9.       .11
        2 COMBINED AT
+                         CI2      519.   12.50        107.         39.         39.       .39
```

	ROUTED TO							
+		V1	360.	12.92	106.	39.	39.	.39
	ROUTED TO							
+		2R	353.	13.25	105.	39.	39.	.39
	HYDROGRAPH AT							
+		I1	266.	12.33	28.	10.	10.	.15
	2 COMBINED AT							
+		CI1	365.	13.17	133.	49.	49.	.55
	ROUTED TO							
+		1R	365.	13.17	133.	49.	49.	.55

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



Basin J

HEC-1 Model Schematic

Sub-basin

Routing Reach

Storage Reach

Concentration Point

End of Model

Basin J

100 – Year
6 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998               *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   13JUN04  TIME  19:50:16  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin J - 100-Year 6-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   3.357    0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 11           PC   0.962   0.972   0.983   0.991     1.0
 12           IN      15 28APR04       0
 13           JD   3.337     0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 16           PC   0.962   0.972   0.983   0.991     1.0
 17           IN      15 28APR04       0
 18           JD   3.314     1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 20           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 21           PC  0.9572  0.9684  0.9798  0.9898     1.0
 22           IN      15 28APR04       0
 23           JD   3.223     5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 25           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 26           PC  0.9487   0.962  0.9743  0.9877     1.0

 27           KK     J11
 28           KO       0       0     0.0       1      22
 29           BA   0.025
 30           LG    0.35    0.29   8.407    0.07     0.0
              * S_Graph
 31           UI     0.0   13.55   48.87   60.09    35.7   17.86     9.1    4.63    1.61    1.61
 32           UI     0.0

 33           KK     J10
 34           KO       0       0     0.0       1      22
 35           BA  0.2065
 36           LG   0.803   0.176  10.161   0.044   2.348
              * S_Graph
 37           UI     0.0   25.88   71.48  149.41  201.58  278.83  175.61  141.58  117.32    94.6
 38           UI   70.71   59.47   47.08   34.45   28.88   21.89   18.79   12.67   12.67    7.88
 39           UI    4.96    4.96    4.96    4.96    4.96     0.0

 40           KK     CJ5   CNAME      5R
 41           KO       0       0     0.0       0      22
 42           HC       2   0.232
```



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

```
 43          KK      5R   CNAME     CJ5
 44          KO       0       0     0.0       0      22
 45          RS       2    FLOW    -1.0     0.0
 46          RC    0.07    0.05    0.07  776.64  0.0115     0.0
             * 5R
 47          RX     0.0  109.71  198.91  259.22  309.67  376.19  444.44  528.73
 48          RY  1731.1 1729.22 1727.16 1727.86 1727.79  1727.1 1728.77 1730.46

 49          KK      J9
 50          KO       0       0     0.0       1      22
 51          BA   0.014
 52          LG    0.35   0.292   8.321   0.072     0.0
             * S_Graph
 53          UI     0.0   24.14   52.87   21.67    6.88    1.95     0.0

 54          KK     CJ4   CNAME      4R
 55          KO       0       0     0.0       0      22
 56          HC       2   0.246

 57          KK      4R   CNAME     CJ4
 58          KO       0       0     0.0       0      22
 59          RS       3    FLOW    -1.0     0.0
 60          RC    0.07    0.05    0.07 1470.82  0.0142     0.0
             * 4R
 61          RX     0.0  131.52  169.16  198.58   260.2  325.96   363.6  421.59
 62          RY  1717.3  1714.7 1715.01 1715.42 1715.45 1716.87 1717.91 1719.32

 63          KK      J8
 64          KO       0       0     0.0       1      22
 65          BA     0.1
 66          LG    0.35   0.308   7.832   0.087     0.0
             * S_Graph
 67          UI     0.0   28.01  107.78  177.18  176.97  115.64   69.25   41.09   24.74   14.56
 68          UI    7.21    4.83    4.83     0.0

 69          KK     CJ3   CNAME      4R
 70          KO       0       0     0.0       0      22
 71          HC       2   0.346

 72          KK      V1
 73          KM    (2)Barrel 48"CMP Under New River Road
             * RESERVOIR STORAGE
 74          KO       0       0     0.0       0      22
 75          RS       1    STOR     0.0     0.0
             * Area Curve J
 76          SA    0.02    0.31    0.82    1.39    2.14    2.95    3.98     5.0    5.26    5.94
             * Elevation Curve J
 77          SE  1704.0  1705.0  1706.0  1707.0  1708.0  1709.0  1710.0  1710.8  1711.0  1711.4
             * Discharge Curve J
 78          SQ    10.4    27.7    67.4   115.5   165.6   189.8  219.45   242.6   300.0   600.0
```



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

 79          KK      3R   CNAME     CJ3
 80          KO       0       0     0.0       0      22
 81          RS       5    FLOW    -1.0     0.0
 82          RC    0.07    0.05    0.07 2330.56  0.0128     0.0
             * 3R
 83          RX     0.0   111.4  178.76  265.37  322.85  390.21  515.82  584.59
 84          RY  1702.1 1698.81 1696.31 1693.18  1693.0 1692.23 1697.53 1700.27

 85          KK      J3
 86          KO       0       0     0.0       1      22
 87          BA  0.0738
 88          LG    0.35   0.306   7.883   0.085     0.0
             * S_Graph
 89          UI     0.0   21.93   84.99  136.66  130.55   82.45   48.43   28.28   16.71   10.33
 90          UI     3.7    3.67    3.67

 91          KK    CJ2R   CNAME      3R
 92          KO       0       0     0.0       0      22
 93          HC       2   0.420

 94          KK      J7
 95          KO       0       0     0.0       1      22
 96          BA   0.052
 97          LG    0.35   0.351   6.971   0.118     0.0
             * S_Graph
 98          UI     0.0    6.94   21.86   43.19   60.33   66.33   59.06   42.83   30.48   21.51
 99          UI   14.92   11.17    7.36    4.96    4.06    1.69    1.69    1.69    1.69     0.0

100          KK     J7R   CNAME     CJ8
101          KO       0       0     0.0       0      22
102          RS       4    FLOW    -1.0     0.0
103          RC    0.07    0.05    0.07 1839.36  0.0114     0.0
             * J7R
104          RX     0.0  148.05  251.45  292.68  375.68  480.31  557.51  653.76
105          RY  1726.0 1726.08 1725.07 1724.13 1723.95 1725.65 1724.75 1725.89

106          KK      J6
107          KO       0       0     0.0       1      22
108          BA   0.046
109          LG    0.35   0.325   7.449   0.099     0.0
```

```
                 * S_Graph
 110             UI     0.0     9.42    36.31    64.01    75.02    61.93    39.98    25.69     16.2    10.34
 111             UI    6.51      4.3     1.93     1.93     1.93      0.0

 112             KK      J5
 113             KO       0        0      0.0        1       22
 114             BA  0.0506
 115             LG    0.35    0.297    8.123    0.078      0.0
                 * S_Graph
 116             UI     0.0     9.14    35.75    64.24    78.45     69.6    47.27     30.9    19.98    13.53
 117             UI    8.32     5.68     2.85     2.02     2.02     2.02
1                                                HEC-1 INPUT                                                          PAGE  4

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


 118             KK     CJ7    CNAME      7R
 119             KO       0        0      0.0        0       22
 120             HC       3    0.149

 121             KK      7R    CNAME     CJ7
 122             KO       0        0      0.0        0       22
 123             RS       3     FLOW     -1.0      0.0
 124             RC    0.07     0.05     0.07  1014.12   0.0099      0.0
                 * 7R
 125             RX     0.0   158.93   219.14   256.58   322.62   384.23   463.74   529.78
 126             RY  1709.1  1706.38  1706.15  1705.04  1704.91  1705.87  1706.25  1708.91

 127             KK      J4
 128             KO       0        0      0.0        1       22
 129             BA  0.0377
 130             LG    0.35    0.306    7.873    0.085      0.0
                 * S_Graph
 131             UI     0.0    32.58   104.49     88.0    38.97    16.94     6.67     2.98      0.0

 132             KK     CJ6    CNAME      6R
 133             KO       0        0      0.0        0       22
 134             HC       2    0.186

 135             KK      6R    CNAME     CJ6
 136             KO       0        0      0.0        0       22
 137             RS       4     FLOW     -1.0      0.0
 138             RC    0.07     0.05     0.07   1759.7   0.0141      0.0
                 * 6R
 139             RX     0.0    111.4   178.76   265.37   322.85   390.21   515.82   584.59
 140             RY  1702.1  1698.81  1696.31  1693.18   1693.0  1692.23  1697.53  1700.27

 141             KK      J2
 142             KO       0        0      0.0        1       22
 143             BA  0.0387
 144             LG    0.35    0.288    8.438    0.069      0.0
                 * S_Graph
 145             UI     0.0    21.04    75.87    93.23    55.35    27.68     14.1     7.17      2.5      2.5
 146             UI     0.0

 147             KK    CJ2L    CNAME      3R
 148             KO       0        0      0.0        0       22
 149             HC       2    0.225

 150             KK     CJ2    CNAME      2R
 151             KO       0        0      0.0        0       22
 152             HC       2    0.645

 153             KK      2R    CNAME     CJ2
 154             KO       0        0      0.0        0       22
 155             RS       1     FLOW     -1.0      0.0
 156             RC    0.07     0.05     0.07  2833.4   0.0119      0.0
                 * 2R
 157             RX     0.0    77.41    132.5   209.91   280.52   327.21   380.67   453.41
 158             RY  1675.6   1671.4  1667.84  1662.94  1662.72  1663.99  1666.68  1671.46
1                                                HEC-1 INPUT                                                          PAGE  5

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


 159             KK      J1
 160             KO       0        0      0.0        1       22
 161             BA  0.1760
 162             LG    0.35    0.308    7.845    0.086      0.0
                 * S_Graph
 163             UI     0.0    22.02    61.21   129.17   181.36   208.13   200.49   157.04   113.25    82.26
 164             UI   58.96    42.95    30.95     22.5    15.07    12.23     5.36     5.36     5.36     5.36
 165             UI     0.0

 166             KK     CJ1    CNAME      1R
 167             KO       0        0      0.0        0       22
 168             HC       2    0.821

 169             KK      1R    CNAME     CJ1
 170             KO       0        0      0.0        0       22
 171             RN      1R
 172             ZZ
1
          SCHEMATIC DIAGRAM OF STREAM NETWORK
INPUT
```

```
LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

  27         J11
               .
               .
  33           .          J10
               .            .
               .            .
  40         CJ5............
               V
               V
  43          5R
               .
               .
  49           .           J9
               .            .
               .            .
  54         CJ4............
               V
               V
  57          4R
               .
               .
  63           .           J8
               .            .
               .            .
  69         CJ3............
               V
               V
  72          V1
               V
               V
  79          3R
               .
               .
  85           .           J3
               .            .
               .            .
  91        CJ2R............
               .
               .
  94           .           J7
               .            V
               .            V
 100           .          J7R
               .            .
               .            .
 106           .            .          J6
               .            .           .
               .            .           .
 112           .            .           .          J5
               .            .           .           .
               .            .           .           .
 118           .          CJ7.......................
               .            V
               .            V
 121           .           7R
               .            .
               .            .
 127           .            .          J4
               .            .           .
               .            .           .
 132           .          CJ6............
               .            V
               .            V
 135           .           6R
               .            .
               .            .
 141           .            .          J2
               .            .           .
               .            .           .
 147           .         CJ2L............
               .            .
               .            .
 150         CJ2............
               V
               V
 153          2R
               .
               .
 159           .           J1
               .            .
               .            .
 166         CJ1............
               V
               V
 169          1R

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
```

```
*            VERSION 4.1                *                                    *          609 SECOND STREET          *
*                                       *                                    *       DAVIS, CALIFORNIA 95616       *
*  RUN DATE   13JUN04  TIME  19:50:16   *                                    *           (916) 756-1104           *
*                                       *                                    *                                    *
*****************************************                                    ****************************************
```

```
                    HEC-1 Analysis using WMS
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin J - 100-Year 6-Hour Storm Event
                    April 2004

 6 IO        OUTPUT CONTROL VARIABLES
                  IPRNT          4  PRINT CONTROL
                  IPLOT          0  PLOT CONTROL
                  QSCAL         0.  HYDROGRAPH PLOT SCALE

 7 IN        TIME DATA FOR INPUT TIME SERIES
                  JXMIN         15  TIME INTERVAL IN MINUTES
                 JXDATE     28APR 4  STARTING DATE
                 JXTIME          0  STARTING TIME

12 IN        TIME DATA FOR INPUT TIME SERIES
                  JXMIN         15  TIME INTERVAL IN MINUTES
                 JXDATE     28APR 4  STARTING DATE
                 JXTIME          0  STARTING TIME

17 IN        TIME DATA FOR INPUT TIME SERIES
                  JXMIN         15  TIME INTERVAL IN MINUTES
                 JXDATE     28APR 4  STARTING DATE
                 JXTIME          0  STARTING TIME

22 IN        TIME DATA FOR INPUT TIME SERIES
                  JXMIN         15  TIME INTERVAL IN MINUTES
                 JXDATE     28APR 4  STARTING DATE
                 JXTIME          0  STARTING TIME

   IT        HYDROGRAPH TIME DATA
                   NMIN          5  MINUTES IN COMPUTATION INTERVAL
                  IDATE     28APR 4  STARTING DATE
                  ITIME       0000  STARTING TIME
                     NQ        200  NUMBER OF HYDROGRAPH ORDINATES
                 NDDATE     28APR 4  ENDING DATE
                 NDTIME       1635  ENDING TIME
                  ICENT         19  CENTURY MARK

            COMPUTATION INTERVAL     .08 HOURS
                 TOTAL TIME BASE   16.58 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

 8 JD        INDEX STORM NO. 1
                  STRM        3.36  PRECIPITATION DEPTH
                  TRDA         .01  TRANSPOSITION DRAINAGE AREA

 9 PI          PRECIPITATION PATTERN
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                 .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                 .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00

13 JD        INDEX STORM NO. 2
                  STRM        3.34  PRECIPITATION DEPTH
                  TRDA         .50  TRANSPOSITION DRAINAGE AREA

14 PI          PRECIPITATION PATTERN
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                 .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                 .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                 .00       .00

18 JD        INDEX STORM NO. 3
                  STRM        3.31  PRECIPITATION DEPTH
                  TRDA        1.00  TRANSPOSITION DRAINAGE AREA

19 PI          PRECIPITATION PATTERN
                 .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

 23 JD        INDEX STORM NO. 4
                STRM        3.22  PRECIPITATION DEPTH
                TRDA        5.00  TRANSPOSITION DRAINAGE AREA

 24 PI          PRECIPITATION PATTERN
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00


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          *            *
 27 KK    *       J11  *
          *            *
          **************

 28 KO        OUTPUT CONTROL VARIABLES
                IPRNT           4  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE
                IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                 IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                TIMINT       .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 29 BA        SUBBASIN CHARACTERISTICS
                TAREA         .03  SUBBASIN AREA

 30 LG        GREEN AND AMPT LOSS RATE
                STRTL         .35  STARTING LOSS
                  DTH         .29  MOISTURE DEFICIT
                 PSIF        8.41  WETTING FRONT SUCTION
                XKSAT         .07  HYDRAULIC CONDUCTIVITY
                RTIMP         .00  PERCENT IMPERVIOUS AREA

 29 UI        INPUT UNITGRAPH,  10 ORDINATES,  VOLUME = 1.00
                 .0      13.6      48.9      60.1      35.7      17.9       9.1       4.6       1.6       1.6
                                                                  ***


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          *            *
 33 KK    *       J10  *
          *            *
          **************

 34 KO        OUTPUT CONTROL VARIABLES
                IPRNT           4  PRINT CONTROL
                IPLOT           0  PLOT CONTROL
                QSCAL          0.  HYDROGRAPH PLOT SCALE
                IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                 IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                TIMINT       .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 35 BA        SUBBASIN CHARACTERISTICS
                TAREA         .21  SUBBASIN AREA

 36 LG        GREEN AND AMPT LOSS RATE
                STRTL         .30  STARTING LOSS
                  DTH         .18  MOISTURE DEFICIT
                 PSIF       10.16  WETTING FRONT SUCTION
                XKSAT         .04  HYDRAULIC CONDUCTIVITY
                RTIMP        2.35  PERCENT IMPERVIOUS AREA
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```
 35 UI          INPUT UNITGRAPH,  25 ORDINATES,  VOLUME = 1.00
                     .0      25.9      71.5     149.4     201.6     278.8     175.6     141.6     117.3      94.6
                   70.7      59.5      47.1      34.5      28.9      21.9      18.8      12.7      12.7       7.9
                    5.0       5.0       5.0       5.0       5.0
                                                                  ***

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          *            *
 40 KK    *      CJ5   *        CNAME      5R
          *            *
          **************

 41 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 42 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 43 KK    *       5R   *        CNAME      CJ5
          *            *
          **************

 44 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 45 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 46 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH        777.  REACH LENGTH
                        SEL       .0115  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 48 RY        ELEVATION   1731.10   1729.22   1727.16   1727.86   1727.79   1727.10   1728.77   1730.46
 47 RX        DISTANCE        .00    109.71    198.91    259.22    309.67    376.19    444.44    528.73
                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .08       .37       .87      1.65      2.61      3.63      4.72      5.87      7.10
          OUTFLOW        .00      2.71     20.34     63.60    141.33    291.16    486.77    726.37   1009.01   1332.90
        ELEVATION    1727.10   1727.31   1727.52   1727.73   1727.94   1728.15   1728.36   1728.57   1728.78   1729.00

          STORAGE       8.40      9.78     11.24     12.79     14.42     16.14     17.95     19.82     21.74     23.70
          OUTFLOW    1700.44   2107.83   2560.79   3060.54   3608.00   4204.15   4851.50   5582.58   6363.93   7195.64
        ELEVATION    1729.21   1729.42   1729.63   1729.84   1730.05   1730.26   1730.47   1730.68   1730.89   1731.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      141. TO     7196.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 49 KK    *        J9  *
          *            *
          **************

 50 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 51 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .01  SUBBASIN AREA

 52 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .29  MOISTURE DEFICIT
                       PSIF        8.32  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 51 UI          INPUT UNITGRAPH,   6 ORDINATES,  VOLUME =  .99
                       .0      24.1      52.9      21.7       6.9       2.0
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 54 KK    *       CJ4  *        CNAME      4R
          *            *
          **************

 55 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 56 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 57 KK    *        4R  *        CNAME     CJ4
          *            *
          **************

 58 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 59 RS          STORAGE ROUTING
                      NSTPS           3  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT
```

```
 60 RC          NORMAL DEPTH CHANNEL
                      ANL        .070  LEFT OVERBANK N-VALUE
                     ANCH        .050  MAIN CHANNEL N-VALUE
                      ANR        .070  RIGHT OVERBANK N-VALUE
                    RLNTH       1471.  REACH LENGTH
                      SEL       .0142  ENERGY SLOPE
                    ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 62 RY        ELEVATION   1717.30   1714.70   1715.01   1715.42   1715.45   1716.87   1717.91   1719.32
 61 RX        DISTANCE        .00    131.52    169.16    198.58    260.20    325.96    363.60    421.59

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .17       .66      1.40      2.83      4.48      6.31      8.34     10.56     12.98
          OUTFLOW        .00      3.16     21.59     59.70    147.32    288.23    477.84    716.78   1006.57   1351.79
        ELEVATION    1714.70   1714.94   1715.19   1715.43   1715.67   1715.92   1716.16   1716.40   1716.65   1716.89

          STORAGE      15.58     18.34     21.20     24.14     27.15     30.24     33.42     36.67     40.01     43.43
          OUTFLOW    1785.24   2290.69   2885.56   3539.01   4249.83   5018.20   5844.03   6727.18   7667.60   8665.35
        ELEVATION    1717.13   1717.37   1717.62   1717.86   1718.10   1718.35   1718.59   1718.83   1719.08   1719.32

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      288. TO      8665.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 63 KK      *        J8  *
            *            *
            **************

 64 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 65 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .10  SUBBASIN AREA

 66 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .31  MOISTURE DEFICIT
                      PSIF        7.83  WETTING FRONT SUCTION
                     XKSAT         .09  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 65 UI          INPUT UNITGRAPH,  13 ORDINATES,  VOLUME = 1.00
                       .0      28.0     107.8     177.2     177.0     115.6      69.3      41.1      24.7      14.6
                      7.2       4.8       4.8

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 69 KK      *       CJ3  *        CNAME      4R
            *            *
            **************

 70 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

 71 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
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                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 72 KK    *        V1  *
          *            *
          **************
                    (2)Barrel 48"CMP Under New River Road

 74 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 75 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        STOR  TYPE OF INITIAL CONDITION
                     RSVRIC         .00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 76 SA                AREA          .0        .3        .8       1.4       2.1       3.0       4.0       5.0       5.3       5.9

 77 SE          ELEVATION     1704.00   1705.00   1706.00   1707.00   1708.00   1709.00   1710.00   1710.80   1711.00   1711.40

 78 SQ          DISCHARGE         10.       28.       67.      116.      166.      190.      219.      243.      300.      600.

                                                                    ***

                                                   COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00       .14       .68      1.77      3.53      6.06      9.51     13.10     14.12     16.36
        ELEVATION    1704.00   1705.00   1706.00   1707.00   1708.00   1709.00   1710.00   1710.80   1711.00   1711.40

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 79 KK    *         3R *         CNAME     CJ3
          *            *
          **************

 80 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 81 RS          STORAGE ROUTING
                      NSTPS           5  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 82 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2331.  REACH LENGTH
                        SEL       .0128  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                         CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 84 RY        ELEVATION   1702.10   1698.81   1696.31   1693.18   1693.00   1692.23   1697.53   1700.27
 83 RX        DISTANCE        .00    111.40    178.76    265.37    322.85    390.21    515.82    584.59

                                                                    ***
```

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.80	3.60	8.19	13.53	19.61	26.42	33.99	42.29	51.33
OUTFLOW	.00	19.34	124.13	442.85	932.95	1594.36	2432.57	3455.19	4695.59	6288.55
ELEVATION	1692.23	1692.75	1693.27	1693.79	1694.31	1694.83	1695.35	1695.87	1696.39	1696.91
STORAGE	61.10	71.60	82.86	94.88	107.72	121.42	135.92	150.95	166.46	182.47
OUTFLOW	8102.70	10140.36	12412.17	14923.23	17680.51	20698.55	24094.39	27861.65	31902.24	36217.70
ELEVATION	1697.43	1697.94	1698.46	1698.98	1699.50	1700.02	1700.54	1701.06	1701.58	1702.10

```
*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      124. TO    36218.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 85 KK    *        J3  *
          *            *
          **************

 86 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 87 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .07  SUBBASIN AREA

 88 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .31  MOISTURE DEFICIT
                       PSIF        7.88  WETTING FRONT SUCTION
                      XKSAT         .09  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 87 UI          INPUT UNITGRAPH,  13 ORDINATES,  VOLUME = 1.00
                        .0      21.9      85.0     136.7     130.6      82.4      48.4      28.3      16.7      10.3
                       3.7       3.7       3.7
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 91 KK    *      CJ2R  *        CNAME      3R
          *            *
          **************

 92 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 93 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 94 KK    *        J7  *
          *            *
          **************

 95 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
```

```
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 96 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .05  SUBBASIN AREA

 97 LG          GREEN AND AMPT LOSS RATE
                     STRTL        .35  STARTING LOSS
                       DTH        .35  MOISTURE DEFICIT
                      PSIF       6.97  WETTING FRONT SUCTION
                     XKSAT        .12  HYDRAULIC CONDUCTIVITY
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

 96 UI          INPUT UNITGRAPH,  19 ORDINATES,  VOLUME = 1.00
                       .0       6.9      21.9      43.2      60.3      66.3      59.1      42.8      30.5      21.5
                     14.9      11.2       7.4       5.0       4.1       1.7       1.7       1.7       1.7
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
 100 KK    *       J7R  *        CNAME     CJ8
           *            *
           **************

 101 KO         OUTPUT CONTROL VARIABLES
                     IPRNT          4  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

 102 RS         STORAGE ROUTING
                     NSTPS          4  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

 103 RC         NORMAL DEPTH CHANNEL
                       ANL       .070  LEFT OVERBANK N-VALUE
                      ANCH       .050  MAIN CHANNEL N-VALUE
                       ANR       .070  RIGHT OVERBANK N-VALUE
                     RLNTH      1839.  REACH LENGTH
                       SEL      .0114  ENERGY SLOPE
                     ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 105 RY        ELEVATION   1726.00   1726.08   1725.07   1724.13   1723.95   1725.65   1724.75   1725.89
 104 RX        DISTANCE        .00    148.05    251.45    292.68    375.68    480.31    557.51    653.76
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

           STORAGE        .00       .14       .54      1.03      1.58      2.19      2.85      3.57      4.38      5.33
           OUTFLOW        .00      1.53     10.32     28.44     54.22     87.57    128.61    177.58    234.96    302.21
         ELEVATION    1723.95   1724.06   1724.17   1724.29   1724.40   1724.51   1724.62   1724.73   1724.85   1724.96

           STORAGE       6.43      7.69      9.13     10.75     12.54     14.51     16.63     18.85     21.16     23.77
           OUTFLOW     380.67    477.77    588.57    714.29    856.07   1014.95   1210.67   1428.78   1670.11   1906.98
         ELEVATION    1725.07   1725.18   1725.29   1725.41   1725.52   1725.63   1725.74   1725.85   1725.97   1726.08

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      381. TO     1907.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
 106 KK    *        J6  *
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            *            *
            **************

107 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


                SUBBASIN RUNOFF DATA

108 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

109 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .32  MOISTURE DEFICIT
                       PSIF        7.45  WETTING FRONT SUCTION
                      XKSAT         .10  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

108 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                       .0       9.4      36.3      64.0      75.0      61.9      40.0      25.7      16.2      10.3
                      6.5       4.3       1.9       1.9       1.9
                                                                 ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
112 KK      *        J5  *
            *            *
            **************

113 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


                SUBBASIN RUNOFF DATA

114 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

115 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .30  MOISTURE DEFICIT
                       PSIF        8.12  WETTING FRONT SUCTION
                      XKSAT         .08  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

114 UI          INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                       .0       9.1      35.8      64.2      78.4      69.6      47.3      30.9      20.0      13.5
                      8.3       5.7       2.8       2.0       2.0       2.0
                                                                 ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
118 KK      *       CJ7  *        CNAME      7R
            *            *
            **************

119 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


120 HC          HYDROGRAPH COMBINATION
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                    ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
121 KK    *        7R  *        CNAME     CJ7
          *            *
          **************

122 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          4  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

123 RS          STORAGE ROUTING
                     NSTPS          3  NUMBER OF SUBREACHES
                      ITYP       FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC      -1.00  INITIAL CONDITION
                         X        .00 WORKING R AND D COEFFICIENT

124 RC          NORMAL DEPTH CHANNEL
                       ANL       .070  LEFT OVERBANK N-VALUE
                      ANCH       .050  MAIN CHANNEL N-VALUE
                       ANR       .070  RIGHT OVERBANK N-VALUE
                     RLNTH      1014.  REACH LENGTH
                       SEL      .0099  ENERGY SLOPE
                      ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
126 RY        ELEVATION   1709.10   1706.38   1706.15   1705.04   1704.91   1705.87   1706.25   1708.91
125 RX        DISTANCE        .00    158.93    219.14    256.58    322.62    384.23    463.74    529.78

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .28       .76      1.36      2.06      2.91      4.04      5.56      7.22      8.98
          OUTFLOW        .00      9.75     44.63    102.95    186.21    305.74    469.28    691.15    964.70   1285.59
        ELEVATION    1704.91   1705.13   1705.35   1705.57   1705.79   1706.01   1706.23   1706.45   1706.67   1706.90

          STORAGE      10.82     12.77     14.81     16.94     19.16     21.49     23.90     26.41     29.01     31.70
          OUTFLOW    1652.61   2065.35   2523.79   3028.15   3578.79   4176.18   4820.86   5513.41   6254.46   7069.27
        ELEVATION    1707.12   1707.34   1707.56   1707.78   1708.00   1708.22   1708.44   1708.66   1708.88   1709.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       45. TO     7069.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
127 KK    *        J4  *
          *            *
          **************

128 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          4  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

129 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .04  SUBBASIN AREA

130 LG          GREEN AND AMPT LOSS RATE
                     STRTL        .35  STARTING LOSS
                       DTH        .31  MOISTURE DEFICIT
                      PSIF       7.87  WETTING FRONT SUCTION
```

```
                    XKSAT          .09  HYDRAULIC CONDUCTIVITY
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

129 UI          INPUT UNITGRAPH,   8 ORDINATES,  VOLUME = 1.00
                     .0      32.6     104.5      88.0      39.0      16.9       6.7       3.0

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
132 KK      *       CJ6  *        CNAME      6R
            *            *
            **************

133 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

134 HC          HYDROGRAPH COMBINATION
                    ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
135 KK      *        6R  *        CNAME     CJ6
            *            *
            **************

136 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

                HYDROGRAPH ROUTING DATA

137 RS          STORAGE ROUTING
                    NSTPS           4  NUMBER OF SUBREACHES
                     ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                        X         .00 WORKING R AND D COEFFICIENT

138 RC          NORMAL DEPTH CHANNEL
                      ANL        .070  LEFT OVERBANK N-VALUE
                     ANCH        .050  MAIN CHANNEL N-VALUE
                      ANR        .070  RIGHT OVERBANK N-VALUE
                    RLNTH       1760.  REACH LENGTH
                      SEL       .0141  ENERGY SLOPE
                    ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
140 RY       ELEVATION   1702.10   1698.81   1696.31   1693.18   1693.00   1692.23   1697.53   1700.27
139 RX       DISTANCE        .00    111.40    178.76    265.37    322.85    390.21    515.82    584.59

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .61      2.72      6.19     10.21     14.80     19.95     25.66     31.93     38.75
          OUTFLOW        .00     20.30    130.28    464.80    979.18   1673.37   2553.11   3626.40   4928.28   6600.17
        ELEVATION    1692.23   1692.75   1693.27   1693.79   1694.31   1694.83   1695.35   1695.87   1696.39   1696.91

          STORAGE      46.13     54.07     62.57     71.64     81.34     91.68    102.63    113.97    125.69    137.77
          OUTFLOW    8504.22  10642.85  13027.24  15662.73  18556.64  21724.23  25288.36  29242.29  33483.11  38012.41
        ELEVATION    1697.43   1697.94   1698.46   1698.98   1699.50   1700.02   1700.54   1701.06   1701.58   1702.10


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      130. TO    38012.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 141 KK     *        J2  *
            *            *
            **************

 142 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


               SUBBASIN RUNOFF DATA

 143 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .04  SUBBASIN AREA

 144 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .29  MOISTURE DEFICIT
                       PSIF        8.44  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 143 UI          INPUT UNITGRAPH,  10 ORDINATES,  VOLUME = 1.00
                        .0      21.0      75.9      93.2      55.3      27.7      14.1       7.2       2.5       2.5

                                                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 147 KK     *      CJ2L  *        CNAME      3R
            *            *
            **************

 148 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 149 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 150 KK     *       CJ2  *        CNAME      2R
            *            *
            **************

 151 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 152 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                                                  ***
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
153 KK    *        2R  *        CNAME     CJ2
          *            *
          **************

154 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

155 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

156 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       2833.  REACH LENGTH
                       SEL       .0119  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
158 RY        ELEVATION   1675.60   1671.40   1667.84   1662.94   1662.72   1663.99   1666.68   1671.46
157 RX        DISTANCE        .00     77.41    132.50    209.91    280.52    327.21    380.67    453.41

                                                      ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      3.27      8.58     15.15     22.79     31.49     41.26     52.00     63.67     76.26
          OUTFLOW        .00    101.20    421.06    998.08   1797.64   2825.62   4092.46   5611.78   7484.73   9755.55
        ELEVATION    1662.72   1663.40   1664.08   1664.75   1665.43   1666.11   1666.79   1667.46   1668.14   1668.82

          STORAGE      89.77    104.19    119.53    135.79    152.75    170.26    188.33    206.94    226.10    245.82
          OUTFLOW   12312.72  15163.22  18313.80  21786.62  25709.44  29947.97  34501.86  39371.42  44557.47  50061.17
        ELEVATION    1669.50   1670.18   1670.85   1671.53   1672.21   1672.89   1673.57   1674.24   1674.92   1675.60


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
159 KK    *        J1  *
          *            *
          **************

160 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

161 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .18  SUBBASIN AREA

162 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH        ,.31  MOISTURE DEFICIT
                       PSIF        7.84  WETTING FRONT SUCTION
                      XKSAT         .09  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

161 UI          INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                        .0      22.0      61.2     129.2     181.4     208.1     200.5     157.0     113.3      82.3
                      59.0      43.0      31.0      22.5      15.1      12.2       5.4       5.4       5.4       5.4

                                                      ***
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 166 KK     *      CJ1   *        CNAME      1R
            *            *
            **************

 167 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 168 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 169 KK     *       1R   *        CNAME      CJ1
            *            *
            **************

 170 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

 171 RN          NO ROUTING
                                                                  ***
1
                                                  RUNOFF SUMMARY
                                             FLOW IN CUBIC FEET PER SECOND
                                          TIME IN HOURS,  AREA IN SQUARE MILES

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

          HYDROGRAPH AT
+                           J11         74.    4.17          6.          2.          2.       .03
          HYDROGRAPH AT
+                           J10        401.    4.33         52.         19.         19.       .21
          2 COMBINED AT
+                           CJ5        453.    4.25         57.         21.         21.       .23
          ROUTED TO
+                            5R        444.    4.33         57.         21.         21.       .23
          HYDROGRAPH AT
+                            J9        48.     4.08          3.          1.          1.       .01
          2 COMBINED AT
+                           CJ4        453.    4.33         60.         22.         22.       .25
          ROUTED TO
+                            4R        432.    4.50         60.         22.         22.       .25
          HYDROGRAPH AT
+                            J8        249.    4.17         21.          8.          8.       .10
          2 COMBINED AT
+                           CJ3        583.    4.33         82.         30.         30.       .35
          ROUTED TO
+                            V1        364.    4.67         86.         38.         38.       .35
          ROUTED TO
+                            3R        335.    4.92         86.         38.         38.       .35
```

+	HYDROGRAPH AT	J3	189.	4.17	16.	6.	6.	.07
+	2 COMBINED AT	CJ2R	340.	4.92	102.	44.	44.	.42
+	HYDROGRAPH AT	J7	100.	4.33	10.	4.	4.	.05
+	ROUTED TO	J7R	89.	4.58	10.	4.	4.	.05
+	HYDROGRAPH AT	J6	107.	4.25	10.	3.	3.	.05
+	HYDROGRAPH AT	J5	117.	4.25	11.	4.	4.	.05
+	3 COMBINED AT	CJ7	252.	4.33	31.	11.	11.	.15
+	ROUTED TO	7R	248.	4.42	31.	11.	11.	.15
+	HYDROGRAPH AT	J4	115.	4.17	8.	3.	3.	.04
+	2 COMBINED AT	CJ6	282.	4.33	39.	14.	14.	.19
+	ROUTED TO	6R	276.	4.42	39.	14.	14.	.19
+	HYDROGRAPH AT	J2	115.	4.17	9.	3.	3.	.04
+	2 COMBINED AT	CJ2L	322.	4.33	48.	17.	17.	.22
+	2 COMBINED AT	CJ2	553.	4.50	147.	60.	60.	.64
+	ROUTED TO	2R	508.	4.67	147.	60.	60.	.64
+	HYDROGRAPH AT	J1	336.	4.33	38.	14.	14.	.18
+	2 COMBINED AT	CJ1	719.	4.50	182.	72.	72.	.82
+	ROUTED TO	1R	719.	4.50	182.	72.	72.	.82

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

Basin J

100 – Year
24 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*            VERSION 4.1               *
*                                      *
*  RUN DATE   26MAY04  TIME  15:44:38  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin J - 100-Year 24-Hour Storm Event
  4           ID  April 2004
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   4.438    0.01
              * 24-hour distribution
  9           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 10           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 11           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 12           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 13           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 14           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 15           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 16           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 17           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 18           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 19           IN      15 28APR04       0
 20           JD   4.216    10.0
              * 24-hour distribution
 21           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 23           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 24           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 28           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 30           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

 31           KK     J11
 32           KO       0       0     0.0       1      22
 33           BA   0.025
 34           LG    0.35    0.29   8.407    0.07     0.0
              * S_Graph
 35           UI     0.0   13.55   48.87   60.09    35.7   17.86     9.1    4.63    1.61    1.61
 36           UI     0.0

 37           KK     J10
 38           KO       0       0     0.0       1      22
 39           BA  0.2065
 40           LG   0.303   0.176  10.161   0.044   2.348
              * S_Graph
 41           UI     0.0   25.88   71.48  149.41  201.58  278.83  175.61  141.58  117.32    94.6
 42           UI   70.71   59.47   47.08   34.45   28.88   21.89   18.79   12.67   12.67    7.88
 43           UI    4.96    4.96    4.96    4.96    4.96     0.0
```



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

```
 44          KK     CJ5   CNAME      5R
 45          KO       0       0     0.0       0      22
 46          HC       2   0.232

 47          KK      5R   CNAME     CJ5
 48          KO       0       0     0.0       0      22
 49          RS       2    FLOW    -1.0     0.0
 50          RC    0.07    0.05    0.07  776.64  0.0115     0.0
             * 5R
 51          RX     0.0  109.71  198.91  259.22  309.67  376.19  444.44  528.73
 52          RY  1731.1 1729.22 1727.16 1727.86 1727.79  1727.1 1728.77 1730.46

 53          KK      J9
 54          KO       0       0     0.0       1      22
 55          BA   0.014
 56          LG    0.35   0.292   8.321   0.072     0.0
             * S_Graph
 57          UI     0.0   24.14   52.87   21.67    6.88    1.95     0.0

 58          KK     CJ4   CNAME      4R
 59          KO       0       0     0.0       0      22
 60          HC       2   0.246

 61          KK      4R   CNAME     CJ4
 62          KO       0       0     0.0       0      22
 63          RS       3    FLOW    -1.0     0.0
 64          RC    0.07    0.05    0.07 1470.82  0.0142     0.0
             * 4R
 65          RX     0.0  131.52  169.16  198.58   260.2  325.96   363.6  421.59
 66          RY  1717.3  1714.7 1715.01 1715.42 1715.45 1716.87 1717.91 1719.32

 67          KK      J8
 68          KO       0       0     0.0       1      22
 69          BA     0.1
 70          LG    0.35   0.308   7.832   0.087     0.0
             * S_Graph
 71          UI     0.0   28.01  107.78  177.18  176.97  115.64   69.25   41.09   24.74   14.56
 72          UI    7.21    4.83    4.83     0.0

 73          KK     CJ3   CNAME      4R
 74          KO       0       0     0.0       0      22
 75          HC       2   0.346

 76          KK      V1
 77          KM    (2)Barrel 48"CMP Under New River Road
             * RESERVOIR STORAGE
 78          KO       0       0     0.0       0      22
 79          RS       1    STOR     0.0     0.0
             * Area Curve J
 80          SA    0.02    0.31    0.82    1.39    2.14    2.95    3.98     5.0    5.26    5.94
             * Elevation Curve J
 81          SE  1704.0  1705.0  1706.0  1707.0  1708.0  1709.0  1710.0  1710.8  1711.0  1711.4
             * Discharge Curve J
 82          SQ    10.4    27.7    67.4   115.5   165.6   189.8  219.45   242.6   300.0   600.0
```



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

 83          KK      3R   CNAME     CJ3
 84          KO       0       0     0.0       0      22
 85          RS       5    FLOW    -1.0     0.0
 86          RC    0.07    0.05    0.07 2330.56  0.0128     0.0
             * 3R
 87          RX     0.0   111.4  178.76  265.37  322.85  390.21  515.82  584.59
 88          RY  1702.1 1698.81 1696.31 1693.18  1693.0 1692.23 1697.53 1700.27

 89          KK      J3
 90          KO       0       0     0.0       1      22
 91          BA  0.0738
 92          LG    0.35   0.306   7.883   0.085     0.0
             * S_Graph
 93          UI     0.0   21.93   84.99  136.66  130.55   82.45   48.43   28.28   16.71   10.33
 94          UI     3.7    3.67    3.67

 95          KK    CJ2R   CNAME      3R
 96          KO       0       0     0.0       0      22
 97          HC       2   0.420

 98          KK      J7
 99          KO       0       0     0.0       1      22
100          BA   0.052
101          LG    0.35   0.351   6.971   0.118     0.0
             * S_Graph
102          UI     0.0    6.94   21.86   43.19   60.33   66.33   59.06   42.83   30.48   21.51
103          UI   14.92   11.17    7.36    4.96    4.06    1.69    1.69    1.69    1.69     0.0

104          KK     J7R   CNAME     CJ8
105          KO       0       0     0.0       0      22
106          RS       4    FLOW    -1.0     0.0
107          RC    0.07    0.05    0.07 1839.36  0.0114     0.0
             * J7R
108          RX     0.0  148.05  251.45  292.68  375.68  480.31  557.51  653.76
```

```
 109          RY  1726.0 1726.08 1725.07 1724.13 1723.95 1725.65 1724.75 1725.89

 110          KK      J6
 111          KO       0       0     0.0       1      22
 112          BA   0.046
 113          LG    0.35   0.325   7.449   0.099     0.0
              * S_Graph
 114          UI     0.0    9.42   36.31   64.01   75.02   61.93   39.98   25.69    16.2   10.34
 115          UI    6.51     4.3    1.93    1.93    1.93     0.0

 116          KK      J5
 117          KO       0       0     0.0       1      22
 118          BA  0.0506
 119          LG    0.35   0.297   8.123   0.078     0.0
              * S_Graph
 120          UI     0.0    9.14   35.75   64.24   78.45    69.6   47.27    30.9   19.98   13.53
 121          UI    8.32    5.68    2.85    2.02    2.02    2.02
```



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

 122          KK     CJ7   CNAME      7R
 123          KO       0       0     0.0       0      22
 124          HC       3   0.149

 125          KK      7R   CNAME     CJ7
 126          KO       0       0     0.0       0      22
 127          RS       3    FLOW    -1.0     0.0
 128          RC    0.07    0.05    0.07 1014.12  0.0099     0.0
              * 7R
 129          RX     0.0  158.93  219.14  256.58  322.62  384.23  463.74  529.78
 130          RY  1709.1 1706.38 1706.15 1705.04 1704.91 1705.87 1706.25 1708.91

 131          KK      J4
 132          KO       0       0     0.0       1      22
 133          BA  0.0377
 134          LG    0.35   0.306   7.873   0.085     0.0
              * S_Graph
 135          UI     0.0   32.58  104.49    88.0   38.97   16.94    6.67    2.98     0.0

 136          KK     CJ6   CNAME      6R
 137          KO       0       0     0.0       0      22
 138          HC       2   0.186

 139          KK      6R   CNAME     CJ6
 140          KO       0       0     0.0       0      22
 141          RS       4    FLOW    -1.0     0.0
 142          RC    0.07    0.05    0.07  1759.7  0.0141     0.0
              * 6R
 143          RX     0.0   111.4  178.76  265.37  322.85  390.21  515.82  584.59
 144          RY  1702.1 1698.81 1696.31 1693.18  1693.0 1692.23 1697.53 1700.27

 145          KK      J2
 146          KO       0       0     0.0       1      22
 147          BA  0.0387
 148          LG    0.35   0.288   8.438   0.069     0.0
              * S_Graph
 149          UI     0.0   21.04   75.87   93.23   55.35   27.68    14.1    7.17     2.5     2.5
 150          UI     0.0

 151          KK    CJ2L   CNAME      3R
 152          KO       0       0     0.0       0      22
 153          HC       2   0.225

 154          KK     CJ2   CNAME      2R
 155          KO       0       0     0.0       0      22
 156          HC       2   0.645

 157          KK      2R   CNAME     CJ2
 158          KO       0       0     0.0       0      22
 159          RS       4    FLOW    -1.0     0.0
 160          RC    0.07    0.05    0.07  2833.4  0.0119     0.0
              * 2R
 161          RX     0.0   77.41   132.5  209.91  280.52  327.21  380.67  453.41
 162          RY  1675.6  1671.4 1667.84 1662.94 1662.72 1663.99 1666.68 1671.46
```



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

 163          KK      J1
 164          KO       0       0     0.0       1      22
 165          BA  0.1760
 166          LG    0.35   0.308   7.845   0.086     0.0
              * S_Graph
 167          UI     0.0   22.02   61.21  129.17  181.36  208.13  200.49  157.04  113.25   82.26
 168          UI   58.96   42.95   30.95    22.5   15.07   12.23    5.36    5.36    5.36    5.36
 169          UI     0.0

 170          KK     CJ1   CNAME      1R
 171          KO       0       0     0.0       0      22
 172          HC       2   0.821
```

```
173          KK      1R   CNAME     CJ1
174          KO       0       0     0.0        0       22
175          RN      1R
176          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   31         J11
                .
                .
   37           .          J10
                .            .
                .            .
   44         CJ5............
                V
                V
   47          5R
                .
                .
   53           .           J9
                .            .
                .            .
   58         CJ4............
                V
                V
   61          4R
                .
                .
   67           .           J8
                .            .
                .            .
   73         CJ3............
                V
                V
   76          V1
                V
                V
   83          3R
                .
                .
   89           .           J3
                .            .
                .            .
   95        CJ2R............
                .
                .
   98           .           J7
                .            V
                .            V
  104           .          J7R
                .            .
                .            .
  110           .            .           J6
                .            .            .
                .            .            .
  116           .            .            .          J5
                .            .            .           .
                .            .            .           .
  122           .          CJ7........................
                .            V
                .            V
  125           .           7R
                .            .
                .            .
  131           .            .           J4
                .            .            .
                .            .            .
  136           .          CJ6............
                .            V
                .            V
  139           .           6R
                .            .
                .            .
  145           .            .           J2
                .            .            .
                .            .            .
  151           .         CJ2L............
                .            .
                .            .
  154         CJ2............
                V
                V
  157          2R
                .
                .
  163           .           J1
                .            .
                .            .
```

```
  170          CJ1............
                 V
                 V
  173           1R

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1****************************************                                    ****************************************
 *                                      *                                    *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                    *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                                    *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                    *          609 SECOND STREET           *
 *                                      *                                    *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   26MAY04  TIME  15:44:38  *                                    *           (916) 756-1104             *
 *                                      *                                    *                                      *
 ****************************************                                    ****************************************


                        HEC-1 Analysis using WMS
                        New River West Tributaries FDS - FCD 2003 C057
                        Basin J - 100-Year 24-Hour Storm Event
                        April 2004

   6 IO          OUTPUT CONTROL VARIABLES
                       IPRNT          4  PRINT CONTROL
                       IPLOT          0  PLOT CONTROL
                       QSCAL         0.  HYDROGRAPH PLOT SCALE

   7 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN         15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME          0  STARTING TIME

  19 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN         15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME          0  STARTING TIME

     IT          HYDROGRAPH TIME DATA
                        NMIN          5  MINUTES IN COMPUTATION INTERVAL
                       IDATE     28APR 4  STARTING DATE
                       ITIME        0000  STARTING TIME
                          NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                      NDDATE     28APR 4  ENDING DATE
                      NDTIME        1635  ENDING TIME
                       ICENT         19  CENTURY MARK

                 COMPUTATION INTERVAL     .08 HOURS
                      TOTAL TIME BASE   16.58 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

   8 JD          INDEX STORM NO. 1
                        STRM        4.44  PRECIPITATION DEPTH
                        TRDA         .01  TRANSPOSITION DRAINAGE AREA

   9 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                     .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                     .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                     .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                     .00       .00       .00       .00       .00       .00       .00       .00       .00

  20 JD          INDEX STORM NO. 2
                        STRM        4.22  PRECIPITATION DEPTH
                        TRDA       10.00  TRANSPOSITION DRAINAGE AREA

  21 PI            PRECIPITATION PATTERN
                     .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
                .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
                .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
                .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00       .00       .00       .00       .00       .00       .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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            *            *
 31 KK      *       J11  *
            *            *
            **************

 32 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 33 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .03  SUBBASIN AREA

 34 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .29  MOISTURE DEFICIT
                       PSIF        8.41  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 33 UI          INPUT UNITGRAPH,  10 ORDINATES,  VOLUME = 1.00
                       .0      13.6      48.9      60.1      35.7      17.9       9.1       4.6       1.6       1.6
                                                                  ***

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            **************
            *            *
 37 KK      *       J10  *
            *            *
            **************

 38 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 39 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .21  SUBBASIN AREA

 40 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .30  STARTING LOSS
                        DTH         .18  MOISTURE DEFICIT
                       PSIF       10.16  WETTING FRONT SUCTION
                      XKSAT         .04  HYDRAULIC CONDUCTIVITY
                      RTIMP        2.35  PERCENT IMPERVIOUS AREA
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```
 39 UI          INPUT UNITGRAPH,  25 ORDINATES,  VOLUME = 1.00
                      .0      25.9      71.5     149.4     201.6     278.8     175.6     141.6     117.3      94.6
                    70.7      59.5      47.1      34.5      28.9      21.9      18.8      12.7      12.7       7.9
                     5.0       5.0       5.0       5.0       5.0
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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            *            *
 44 KK      *       CJ5  *        CNAME      5R
            *            *
            **************

 45 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 46 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 47 KK      *        5R  *        CNAME     CJ5
            *            *
            **************

 48 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 49 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 50 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH        777.  REACH LENGTH
                        SEL       .0115  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 52 RY        ELEVATION   1731.10   1729.22   1727.16   1727.86   1727.79   1727.10   1728.77   1730.46
 51 RX        DISTANCE        .00    109.71    198.91    259.22    309.67    376.19    444.44    528.73
                                                                  ***

                                       COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .08       .37       .87      1.65      2.61      3.63      4.72      5.87      7.10
          OUTFLOW        .00      2.71     20.34     63.60    141.33    291.16    486.77    726.37   1009.01   1332.90
        ELEVATION    1727.10   1727.31   1727.52   1727.73   1727.94   1728.15   1728.36   1728.57   1728.78   1729.00

          STORAGE       8.40      9.78     11.24     12.79     14.42     16.14     17.95     19.82     21.74     23.70
          OUTFLOW    1700.44   2107.83   2560.79   3060.54   3608.00   4204.15   4851.50   5582.58   6363.93   7195.64
        ELEVATION    1729.21   1729.42   1729.63   1729.84   1730.05   1730.26   1730.47   1730.68   1730.89   1731.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      141. TO     7196.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 53 KK    *        J9  *
          *            *
          **************

 54 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 55 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .01  SUBBASIN AREA

 56 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .29  MOISTURE DEFICIT
                       PSIF        8.32  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 55 UI          INPUT UNITGRAPH,   6 ORDINATES,  VOLUME =  .99
                        .0      24.1      52.9      21.7       6.9       2.0

                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 58 KK    *       CJ4  *        CNAME      4R
          *            *
          **************

 59 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 60 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 61 KK    *         4R  *        CNAME      CJ4
          *            *
          **************

 62 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 63 RS          STORAGE ROUTING
                      NSTPS           3  NUMBER OF SUBREACHES
```

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                    ITYP        FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC       -1.00  INITIAL CONDITION
                       X         .00 WORKING R AND D COEFFICIENT

 64 RC          NORMAL DEPTH CHANNEL
                     ANL        .070  LEFT OVERBANK N-VALUE
                    ANCH        .050  MAIN CHANNEL N-VALUE
                     ANR        .070  RIGHT OVERBANK N-VALUE
                   RLNTH       1471.  REACH LENGTH
                     SEL       .0142  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                              --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 66 RY        ELEVATION   1717.30   1714.70   1715.01   1715.42   1715.45   1716.87   1717.91   1719.32
 65 RX        DISTANCE        .00    131.52    169.16    198.58    260.20    325.96    363.60    421.59

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .17       .66      1.40      2.83      4.48      6.31      8.34     10.56     12.98
          OUTFLOW        .00      3.16     21.59     59.70    147.32    288.23    477.84    716.78   1006.57   1351.79
        ELEVATION    1714.70   1714.94   1715.19   1715.43   1715.67   1715.92   1716.16   1716.40   1716.65   1716.89

          STORAGE      15.58     18.34     21.20     24.14     27.15     30.24     33.42     36.67     40.01     43.43
          OUTFLOW    1785.24   2290.69   2885.56   3539.01   4249.83   5018.20   5844.03   6727.18   7667.60   8665.35
        ELEVATION    1717.13   1717.37   1717.62   1717.86   1718.10   1718.35   1718.59   1718.83   1719.08   1719.32

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      288. TO     8665.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


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          *            *
 67 KK    *        J8  *
          *            *
          **************

 68 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 69 BA          SUBBASIN CHARACTERISTICS
                    TAREA         .10  SUBBASIN AREA

 70 LG          GREEN AND AMPT LOSS RATE
                    STRTL         .35  STARTING LOSS
                      DTH         .31  MOISTURE DEFICIT
                     PSIF        7.83  WETTING FRONT SUCTION
                    XKSAT         .09  HYDRAULIC CONDUCTIVITY
                    RTIMP         .00  PERCENT IMPERVIOUS AREA

 69 UI          INPUT UNITGRAPH,  13 ORDINATES,  VOLUME = 1.00
                      .0      28.0     107.8     177.2     177.0     115.6      69.3      41.1      24.7      14.6
                     7.2       4.8       4.8

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 73 KK    *       CJ3  *        CNAME      4R
          *            *
          **************

 74 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
```

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                    TIMINT        .083  TIME INTERVAL IN HOURS

 75 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 76 KK    *        V1  *
          *            *
          **************
                        (2)Barrel 48"CMP Under New River Road

 78 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 79 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        STOR  TYPE OF INITIAL CONDITION
                    RSVRIC         .00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 80 SA              AREA          .0        .3        .8       1.4       2.1       3.0       4.0       5.0       5.3       5.9

 81 SE          ELEVATION     1704.00   1705.00   1706.00   1707.00   1708.00   1709.00   1710.00   1710.80   1711.00   1711.40

 82 SQ          DISCHARGE         10.       28.       67.      116.      166.      190.      219.      243.      300.      600.

                                                        ***

                                                COMPUTED STORAGE-ELEVATION DATA

          STORAGE        .00       .14       .68      1.77      3.53      6.06      9.51     13.10     14.12     16.36
        ELEVATION    1704.00   1705.00   1706.00   1707.00   1708.00   1709.00   1710.00   1710.80   1711.00   1711.40

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 83 KK    *         3R *         CNAME     CJ3
          *            *
          **************

 84 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 85 RS          STORAGE ROUTING
                     NSTPS           5  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 86 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       2331.  REACH LENGTH
                       SEL       .0128  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
```

```
                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 88 RY        ELEVATION   1702.10   1698.81   1696.31   1693.18   1693.00   1692.23   1697.53   1700.27
 87 RX        DISTANCE        .00    111.40    178.76    265.37    322.85    390.21    515.82    584.59

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .80      3.60      8.19     13.53     19.61     26.42     33.99     42.29     51.33
          OUTFLOW        .00     19.34    124.13    442.85    932.95   1594.36   2432.57   3455.19   4695.59   6288.55
        ELEVATION    1692.23   1692.75   1693.27   1693.79   1694.31   1694.83   1695.35   1695.87   1696.39   1696.91

          STORAGE      61.10     71.60     82.86     94.88    107.72    121.42    135.92    150.95    166.46    182.47
          OUTFLOW    8102.70  10140.36  12412.17  14923.23  17680.51  20698.55  24094.39  27861.65  31902.24  36217.70
        ELEVATION    1697.43   1697.94   1698.46   1698.98   1699.50   1700.02   1700.54   1701.06   1701.58   1702.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      124. TO    36218.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


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          **************
          *            *
 89 KK    *        J3  *
          *            *
          **************

 90 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 91 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .07  SUBBASIN AREA

 92 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .31  MOISTURE DEFICIT
                      PSIF        7.88  WETTING FRONT SUCTION
                     XKSAT         .09  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

 91 UI          INPUT UNITGRAPH,  13 ORDINATES,  VOLUME = 1.00
                       .0      21.9      85.0     136.7     130.6      82.4      48.4      28.3      16.7      10.3
                      3.7       3.7       3.7

                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 95 KK    *      CJ2R  *        CNAME      3R
          *            *
          **************

 96 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


 97 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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            **************
            *            *
 98 KK      *        J7  *
            *            *
            **************

 99 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

100 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

101 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .35  MOISTURE DEFICIT
                       PSIF        6.97  WETTING FRONT SUCTION
                      XKSAT         .12  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

100 UI          INPUT UNITGRAPH,  19 ORDINATES,  VOLUME = 1.00
                        .0       6.9      21.9      43.2      60.3      66.3      59.1      42.8      30.5      21.5
                      14.9      11.2       7.4       5.0       4.1       1.7       1.7       1.7       1.7
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
104 KK      *       J7R  *        CNAME     CJ8
            *            *
            **************

105 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

106 RS          STORAGE ROUTING
                      NSTPS           4  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

107 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1839.  REACH LENGTH
                        SEL       .0114  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
109 RY        ELEVATION   1726.00   1726.08   1725.07   1724.13   1723.95   1725.65   1724.75   1725.89
108 RX        DISTANCE        .00    148.05    251.45    292.68    375.68    480.31    557.51    653.76
                                                                  ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .14       .54      1.03      1.58      2.19      2.85      3.57      4.38      5.33
          OUTFLOW        .00      1.53     10.32     28.44     54.22     87.57    128.61    177.58    234.96    302.21
        ELEVATION    1723.95   1724.06   1724.17   1724.29   1724.40   1724.51   1724.62   1724.73   1724.85   1724.96

          STORAGE       6.43      7.69      9.13     10.75     12.54     14.51     16.63     18.85     21.16     23.77
          OUTFLOW     380.67    477.77    588.57    714.29    856.07   1014.95   1210.67   1428.78   1670.11   1906.98
        ELEVATION    1725.07   1725.18   1725.29   1725.41   1725.52   1725.63   1725.74   1725.85   1725.97   1726.08
```

```
*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      381. TO     1907.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 110 KK   *        J6  *
          *            *
          **************

 111 KO         OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 112 BA         SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

 113 LG         GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .32  MOISTURE DEFICIT
                       PSIF        7.45  WETTING FRONT SUCTION
                      XKSAT         .10  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 112 UI         INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                        .0       9.4      36.3      64.0      75.0      61.9      40.0      25.7      16.2      10.3
                      6.5       4.3       1.9       1.9       1.9
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 116 KK   *        J5  *
          *            *
          **************

 117 KO         OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 118 BA         SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

 119 LG         GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .30  MOISTURE DEFICIT
                       PSIF        8.12  WETTING FRONT SUCTION
                      XKSAT         .08  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 118 UI         INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                        .0       9.1      35.8      64.2      78.4      69.6      47.3      30.9      20.0      13.5
                      8.3       5.7       2.8       2.0       2.0       2.0
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 122 KK   *       CJ7  *        CNAME      7R
          *            *
```

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          **************

123 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


124 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
125 KK    *        7R  *        CNAME     CJ7
          *            *
          **************

126 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

127 RS          STORAGE ROUTING
                      NSTPS           3  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

128 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1014.  REACH LENGTH
                        SEL       .0099  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
130 RY        ELEVATION   1709.10   1706.38   1706.15   1705.04   1704.91   1705.87   1706.25   1708.91
129 RX        DISTANCE        .00    158.93    219.14    256.58    322.62    384.23    463.74    529.78

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .28       .76      1.36      2.06      2.91      4.04      5.56      7.22      8.98
          OUTFLOW        .00      9.75     44.63    102.95    186.21    305.74    469.28    691.15    964.70   1285.59
        ELEVATION    1704.91   1705.13   1705.35   1705.57   1705.79   1706.01   1706.23   1706.45   1706.67   1706.90

          STORAGE      10.82     12.77     14.81     16.94     19.16     21.49     23.90     26.41     29.01     31.70
          OUTFLOW    1652.61   2065.35   2523.79   3028.15   3578.79   4176.18   4820.86   5513.41   6254.46   7069.27
        ELEVATION    1707.12   1707.34   1707.56   1707.78   1708.00   1708.22   1708.44   1708.66   1708.88   1709.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       45. TO     7069.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
131 KK    *        J4  *
          *            *
          **************

132 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
```

```
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

133 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .04  SUBBASIN AREA

134 LG        GREEN AND AMPT LOSS RATE
                    STRTL        .35  STARTING LOSS
                      DTH        .31  MOISTURE DEFICIT
                     PSIF       7.87  WETTING FRONT SUCTION
                    XKSAT        .09  HYDRAULIC CONDUCTIVITY
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

133 UI        INPUT UNITGRAPH,   8 ORDINATES,  VOLUME = 1.00
                     .0      32.6     104.5      88.0      39.0      16.9       6.7       3.0

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
136 KK    *       CJ6  *        CNAME      6R
          *            *
          **************

137 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


138 HC        HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
139 KK    *        6R  *        CNAME     CJ6
          *            *
          **************

140 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

141 RS        STORAGE ROUTING
                    NSTPS          4  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

142 RC        NORMAL DEPTH CHANNEL
                      ANL       .070  LEFT OVERBANK N-VALUE
                     ANCH       .050  MAIN CHANNEL N-VALUE
                      ANR       .070  RIGHT OVERBANK N-VALUE
                    RLNTH      1760.  REACH LENGTH
                      SEL      .0141  ENERGY SLOPE
                    ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
144 RY      ELEVATION   1702.10   1698.81   1696.31   1693.18   1693.00   1692.23   1697.53   1700.27
143 RX      DISTANCE        .00    111.40    178.76    265.37    322.85    390.21    515.82    584.59
```

```
                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .61      2.72      6.19     10.21     14.80     19.95     25.66     31.93     38.75
          OUTFLOW        .00     20.30    130.28    464.80    979.18   1673.37   2553.11   3626.40   4928.28   6600.17
        ELEVATION    1692.23   1692.75   1693.27   1693.79   1694.31   1694.83   1695.35   1695.87   1696.39   1696.91

          STORAGE      46.13     54.07     62.57     71.64     81.34     91.68    102.63    113.97    125.69    137.77
          OUTFLOW    8504.22  10642.85  13027.24  15662.73  18556.64  21724.23  25288.36  29242.29  33483.11  38012.41
        ELEVATION    1697.43   1697.94   1698.46   1698.98   1699.50   1700.02   1700.54   1701.06   1701.58   1702.10

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      130. TO    38012.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 145 KK     *        J2  *
            *            *
            **************

 146 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 147 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .04  SUBBASIN AREA

 148 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .29  MOISTURE DEFICIT
                       PSIF        8.44  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 147 UI          INPUT UNITGRAPH,  10 ORDINATES,  VOLUME = 1.00
                       .0      21.0      75.9      93.2      55.3      27.7      14.1       7.2       2.5       2.5
                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 151 KK     *      CJ2L  *        CNAME      3R
            *            *
            **************

 152 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 153 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 154 KK     *       CJ2  *        CNAME      2R
            *            *
```

```
              **************

 155 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS


 156 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
 157 KK       *        2R  *        CNAME     CJ2
              *            *
              **************

 158 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS


                 HYDROGRAPH ROUTING DATA

 159 RS          STORAGE ROUTING
                       NSTPS           4  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

 160 RC          NORMAL DEPTH CHANNEL
                         ANL        .070  LEFT OVERBANK N-VALUE
                        ANCH        .050  MAIN CHANNEL N-VALUE
                         ANR        .070  RIGHT OVERBANK N-VALUE
                       RLNTH       2833.  REACH LENGTH
                         SEL       .0119  ENERGY SLOPE
                        ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 162 RY        ELEVATION   1675.60   1671.40   1667.84   1662.94   1662.72   1663.99   1666.68   1671.46
 161 RX        DISTANCE        .00     77.41    132.50    209.91    280.52    327.21    380.67    453.41

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      3.27      8.58     15.15     22.79     31.49     41.26     52.00     63.67     76.26
          OUTFLOW        .00    101.20    421.06    998.08   1797.64   2825.62   4092.46   5611.78   7484.73   9755.55
        ELEVATION    1662.72   1663.40   1664.08   1664.75   1665.43   1666.11   1666.79   1667.46   1668.14   1668.82

          STORAGE      89.77    104.19    119.53    135.79    152.75    170.26    188.33    206.94    226.10    245.82
          OUTFLOW   12312.72  15163.22  18313.80  21786.62  25709.44  29947.97  34501.86  39371.42  44557.47  50061.17
        ELEVATION    1669.50   1670.18   1670.85   1671.53   1672.21   1672.89   1673.57   1674.24   1674.92   1675.60

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN      421. TO    50061.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
 163 KK       *         J1 *
              *            *
              **************

 164 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
```

```
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

 165 BA       SUBBASIN CHARACTERISTICS
                    TAREA        .18  SUBBASIN AREA

 166 LG       GREEN AND AMPT LOSS RATE
                    STRTL        .35  STARTING LOSS
                      DTH        .31  MOISTURE DEFICIT
                     PSIF       7.84  WETTING FRONT SUCTION
                    XKSAT        .09  HYDRAULIC CONDUCTIVITY
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

 165 UI       INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                     .0      22.0      61.2     129.2     181.4     208.1     200.5     157.0     113.3      82.3
                   59.0      43.0      31.0      22.5      15.1      12.2       5.4       5.4       5.4       5.4
                                                                   ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 170 KK   *       CJ1  *        CNAME      1R
          *            *
          **************

 171 KO       OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

 172 HC       HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                   ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 173 KK   *        1R  *        CNAME     CJ1
          *            *
          **************

 174 KO       OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

 175 RN       NO ROUTING
                                                                   ***
1
                                                RUNOFF SUMMARY
                                          FLOW IN CUBIC FEET PER SECOND
                                        TIME IN HOURS,  AREA IN SQUARE MILES

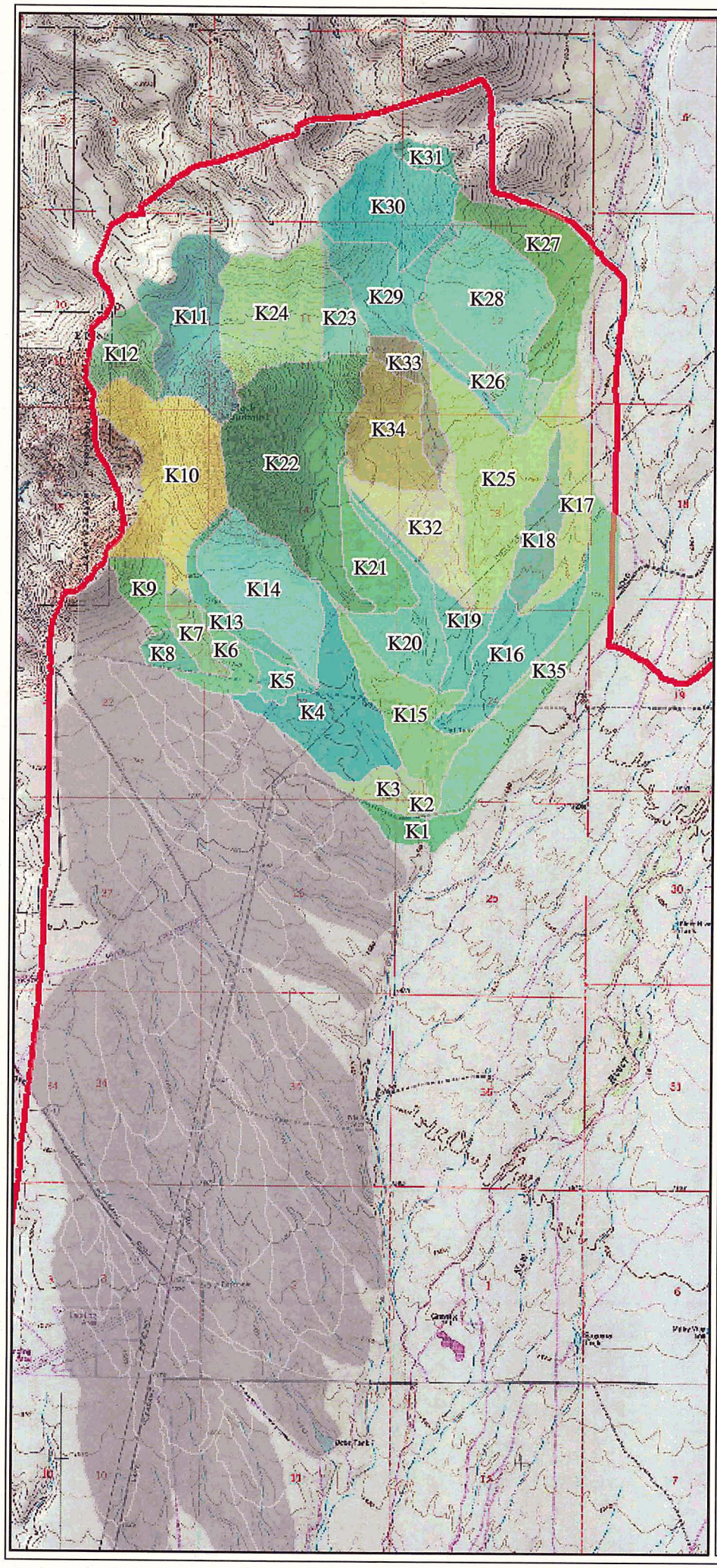
                                   PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
        OPERATION       STATION    FLOW    PEAK                                           AREA      STAGE     MAX STAGE
+                                                     6-HOUR     24-HOUR     72-HOUR

        HYDROGRAPH AT
+                          J11      68.   12.17          6.          2.          2.        .03

        HYDROGRAPH AT
+                          J10     364.   12.33         59.         21.         21.        .21
```

	2 COMBINED AT						
+	CJ5	412.	12.25	64.	23.	23.	.23
	ROUTED TO						
+	5R	404.	12.33	64.	23.	23.	.23
	HYDROGRAPH AT						
+	J9	44.	12.08	3.	1.	1.	.01
	2 COMBINED AT						
+	CJ4	413.	12.33	68.	25.	25.	.25
	ROUTED TO						
+	4R	394.	12.42	67.	24.	24.	.25
	HYDROGRAPH AT						
+	J8	231.	12.17	22.	8.	8.	.10
	2 COMBINED AT						
+	CJ3	529.	12.33	89.	32.	32.	.35
	ROUTED TO						
+	V1	302.	12.75	91.	40.	40.	.35
	ROUTED TO						
+	3R	291.	12.92	91.	40.	40.	.35
	HYDROGRAPH AT						
+	J3	175.	12.17	17.	6.	6.	.07
	2 COMBINED AT						
+	CJ2R	304.	12.92	108.	46.	46.	.42
	HYDROGRAPH AT						
+	J7	94.	12.33	11.	4.	4.	.05
	ROUTED TO						
+	J7R	84.	12.50	11.	4.	4.	.05
	HYDROGRAPH AT						
+	J6	100.	12.25	10.	4.	4.	.05
	HYDROGRAPH AT						
+	J5	109.	12.25	12.	4.	4.	.05
	3 COMBINED AT						
+	CJ7	237.	12.33	32.	12.	12.	.15
	ROUTED TO						
+	7R	234.	12.42	32.	12.	12.	.15
	HYDROGRAPH AT						
+	J4	106.	12.08	9.	3.	3.	.04
	2 COMBINED AT						
+	CJ6	264.	12.33	40.	15.	15.	.19
	ROUTED TO						
+	6R	259.	12.42	40.	15.	15.	.19
	HYDROGRAPH AT						
+	J2	106.	12.17	9.	3.	3.	.04
	2 COMBINED AT						
+	CJ2L	301.	12.33	50.	18.	18.	.22
	2 COMBINED AT						
+	CJ2	546.	12.42	156.	63.	63.	.64
	ROUTED TO						
+	2R	541.	12.58	156.	63.	63.	.64
	HYDROGRAPH AT						
+	J1	313.	12.33	39.	14.	14.	.18
	2 COMBINED AT						
+	CJ1	790.	12.50	194.	77.	77.	.82
	ROUTED TO						
+	1R	790.	12.50	194.	77.	77.	.82

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



New River West FDS
Appendix D.6.K
Basin K

LEGEND

Project Boundary

All Other Basins

Basin K Sub-basin IDs

K1	K19
K2	K20
K3	K21
K4	K22
K5	K23
K6	K24
K7	K25
K8	K26
K9	K27
K10	K28
K11	K29
K12	K30
K13	K31
K14	K32
K15	K33
K16	K34
K17	K35
K18	

N

0 1,000 2,000 4,000
Feet

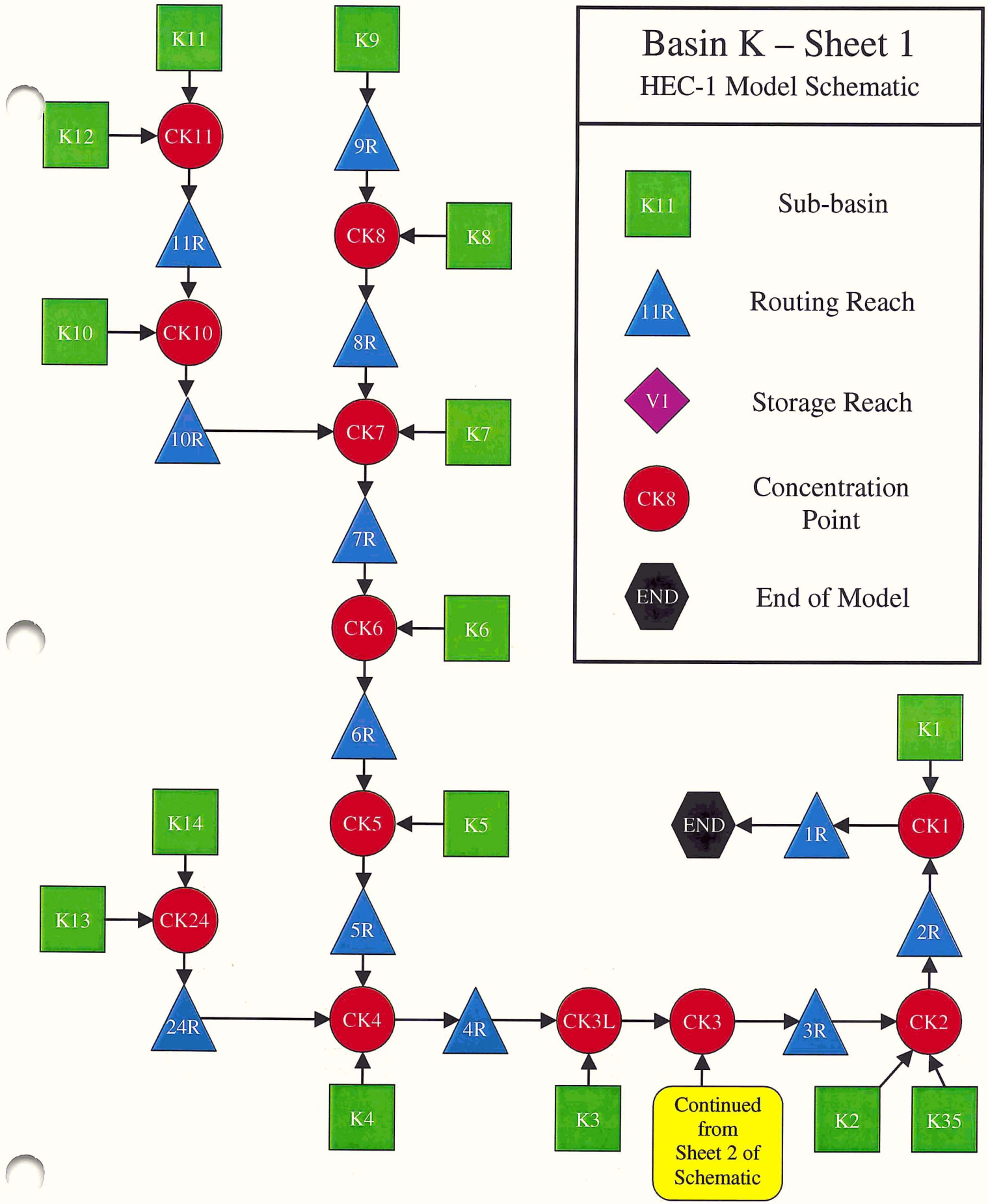
Scale: 1" = 4,000'

Horizontal Datum:	Data Sources:	Date: 06.09.04
NAD83 State Plane	USGS 7.5':	MCFCD Proj. No: FCD 2003-C057
AZ Central	Biscuit Flat	Proj. No: 23443706
Vertical Datum:	Baldy Mountain	PM: M.R.
NGVD 29	New River	Checked By: M.M.
	Governors Peak	Cartography: D.G.
	MCCFCD	

P:\New_River_FDS\GIS\mxds\basins\nr_basinK.mxd

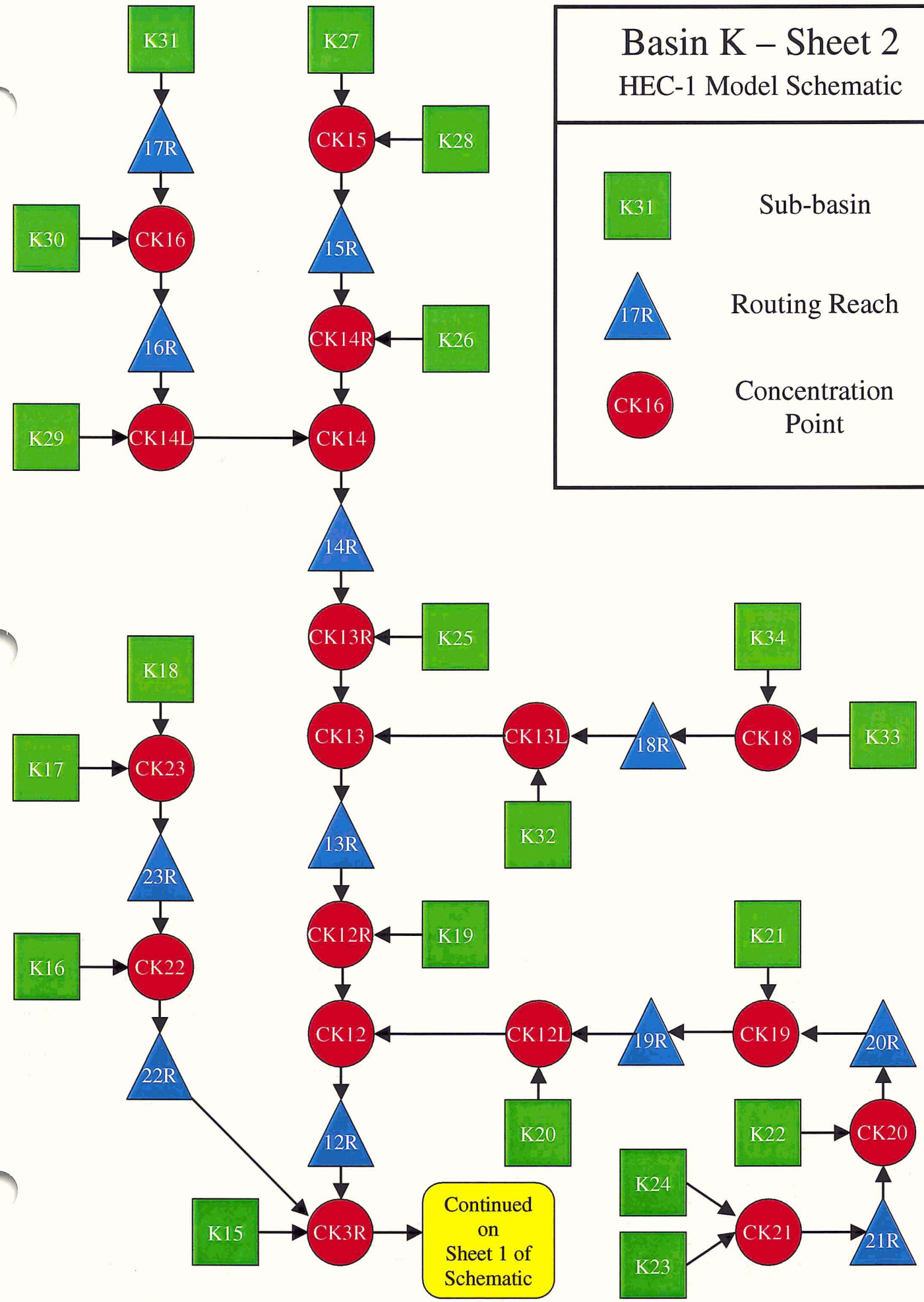
Basin K – Sheet 1

HEC-1 Model Schematic



Basin K – Sheet 2

HEC-1 Model Schematic



Basin K

100 – Year
6 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1*************************************
*                                   *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)*
*              JUN  1998            *
*           VERSION 4.1             *
*                                   *
* RUN DATE   27JAN05  TIME  17:31:45 *
*                                   *
*************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS   *
*   HYDROLOGIC ENGINEERING CENTER   *
*         609 SECOND STREET         *
*      DAVIS, CALIFORNIA 95616      *
*          (916) 756-1104           *
*                                   *
*************************************
```

```
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  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin K - 100-Year 6-Hour Storm Event
  4           ID  January 2005 (Sub-basin K8; revised flowpath)
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   3.374    0.01
              * 6-hour distribution, pattern 1.0
  9           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 10           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 11           PC   0.962   0.972   0.983   0.991     1.0
 12           IN      15 28APR04       0
 13           JD   3.354     0.5
              * 6-hour distribution, pattern 1.0
 14           PC     0.0   0.008   0.016   0.025   0.033   0.041    0.05   0.058   0.066   0.074
 15           PC   0.087   0.099   0.118   0.138   0.216   0.377   0.834   0.911   0.931    0.95
 16           PC   0.962   0.972   0.983   0.991     1.0
 17           IN      15 28APR04       0
 18           JD    3.33     1.0
              * 6-hour distribution, pattern 1.4
 19           PC     0.0  0.0084   0.016   0.025  0.0334  0.0414  0.0504  0.0584  0.0664  0.0748
 20           PC   0.087  0.0994  0.1188   0.148  0.2304  0.4067  0.7778  0.8813  0.9186  0.9452
 21           PC  0.9572  0.9684  0.9798  0.9898     1.0
 22           IN      15 28APR04       0
 23           JD   3.239     5.0
              * 6-hour distribution, pattern 2.3
 24           PC     0.0   0.011  0.0173  0.0267  0.0387   0.049  0.0593  0.0693  0.0797  0.0903
 25           PC   0.103  0.1173  0.1383  0.1827  0.2693   0.458   0.686  0.8233  0.8893  0.9293
 26           PC  0.9487   0.962  0.9743  0.9877     1.0
 27           IN      15 28APR04       0
 28           JD   3.171    10.0
              * 6-hour distribution, pattern 2.7
 29           PC     0.0  0.0134  0.0189  0.0287  0.0443  0.0574  0.0694  0.0818  0.0949  0.1076
 30           PC  0.1223  0.1382  0.1604  0.2063  0.2902  0.4664  0.6764  0.8069  0.8765  0.9189
 31           PC  0.9471  0.9608  0.9735  0.9873     1.0

 32           KK     K13
 33           KO       0       0     0.0       1      22
 34           BA   0.083
 35           LG    0.35   0.165  11.955   0.016   1.981
              * S_Graph
 36           UI     0.0   10.82   32.12   64.93   88.32  112.13   68.99   56.43    46.2   36.13
 37           UI   27.08   23.28    16.5   13.05   10.76    8.29    6.03    5.29    4.24    2.07
 38           UI    2.07    2.07    2.07    2.07     0.0

 39           KK     K14
 40           KO       0       0     0.0       1      22
 41           BA   0.302
 42           LG    0.35   0.182  11.447   0.021   7.481
              * S_Graph
 43           UI     0.0    37.7   103.3   216.8  292.44  406.86  257.56  207.04  171.91  138.94
 44           UI  103.89   87.15   69.31   50.81   42.41   32.57   28.01   18.45   18.45   12.28
 45           UI    7.23    7.23    7.23    7.23    7.23     0.0
```

1 HEC-1 INPUT PAGE 2

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

  46          KK    CK24   CNAME     24R
  47          KO       0       0     0.0       0      22
  48          HC       2   0.385

  49          KK     24R   CNAME     24C
  50          KO       0       0     0.0       0      22
  51          RS       2    FLOW    -1.0     0.0
  52          RC    0.07    0.05    0.07 3448.29  0.0099     0.0
              * 24R
  53          RX     0.0  108.23  190.07  250.51  338.48  620.93  803.03 1085.49
  54          RY  1704.2 1698.16 1692.52 1690.76  1690.3 1693.02 1695.09 1705.54

  55          KK      K9
  56          KO       0       0     0.0       1      22
  57          BA  0.0819
  58          LG   0.317    0.23   8.825    0.07   5.263
              * S_Graph
  59          UI     0.0   49.87  179.21  170.22   97.49   57.24   33.27   20.36   11.77    5.85
  60          UI     4.4     4.4

  61          KK      9R   CNAME      9C
  62          KO       0       0     0.0       0      22
  63          RS       1    FLOW    -1.0     0.0
  64          RC    0.07    0.05    0.07 2027.09  0.0075     0.0
              * 9R
  65          RX     0.0   27.70   51.81    77.3  158.44  191.92  226.41  260.41
  66          RY  1773.2 1771.73 1770.86 1769.94 1769.97 1770.18 1770.85 1771.51

  67          KK      K8
  68          KO       0       0     0.0       1      22
  69          BA   0.042
  70          LG    0.35   0.194  11.066   0.025     0.0
              * S_Graph
  71          UI     0.0   24.43   87.32   89.03    50.6   30.05   18.01   10.73    6.39    3.54
  72          UI    2.21    2.21     0.0

  73          KK     CK8   CNAME      8R
  74          KO       0       0     0.0       0      22
  75          HC       2   0.124

  76          KK      8R   CNAME      8C
  77          KO       0       0     0.0       0      22
  78          RS       1    FLOW    -1.0     0.0
  79          RC    0.07    0.05    0.07  934.42  0.0099     0.0
              * 8R
  80          RX     0.0   19.37   38.61   56.43   89.94  122.75  145.24  167.96
  81          RY  1741.7  1741.7 1741.12 1740.46 1740.16 1741.02  1741.1  1741.1

  82          KK     K11
  83          KO       0       0     0.0       1      22
  84          BA  0.3125
  85          LG   0.273   0.199    6.95   0.177  27.238
              * S_Graph
  86          UI     0.0   62.95  241.03  410.23  518.98  312.79  241.95  175.87  127.64    94.1
1                                          HEC-1 INPUT                                          PAGE  3

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

  87          UI   64.47   48.58   35.25   26.17   17.62   10.25   10.25   10.25   10.25

  88          KK     K12
  89          KO       0       0     0.0       1      22
  90          BA  0.1197
  91          LG    0.25    0.15     7.3    0.17    30.0
              * S_Graph
  92          UI     0.0   62.64  223.43  260.98  147.83   90.65   56.84   34.02   20.45   13.44
  93          UI    6.01    6.01     0.0

  94          KK    CK11   CNAME     11R
  95          KO       0       0     0.0       0      22
  96          HC       2   0.432

  97          KK     11R   CNAME     11C
  98          KO       0       0     0.0       0      22
  99          RS       2    FLOW    -1.0     0.0
 100          RC    0.07    0.05    0.07 6211.11    0.02     0.0
              * 11R
 101          RX     0.0    87.0   126.0   175.0   253.0   311.0   379.0  457.64
 102          RY  1950.9 1920.02 1906.06 1889.62 1874.16 1881.93 1893.97 1910.23

 103          KK     K10
 104          KO       0       0     0.0       1      22
 105          BA  0.4155
 106          LG   0.275   0.191   7.717   0.132  16.106
              * S_Graph
 107          UI     0.0   50.15  130.53  276.77  376.67  541.16  371.52  285.81  240.08  197.12
 108          UI  151.49  121.51  103.29   75.26   60.56   51.41   38.45   30.95   24.54   24.54
 109          UI   10.85    9.61    9.61    9.61    9.61    9.61     0.0

 110          KK    CK10   CNAME     10R
 111          KO       0       0     0.0       0      22
 112          HC       2   0.848
```

```
 113          KK     10R   CNAME     10C
 114          KO       0       0     0.0       0      22
 115          RS       1    FLOW    -1.0     0.0
 116          RC    0.07    0.05    0.07 2656.46  0.0105     0.0
              * 10R
 117          RX     0.0  154.06  243.55  295.18   337.6  412.12  503.14  589.15
 118          RY  1773.8 1771.81  1771.0 1770.27 1771.04 1771.09 1772.82 1774.78

 119          KK      K7
 120          KO       0       0     0.0       1      22
 121          BA   0.067
 122          LG    0.35    0.35    4.15   0.432     0.0
              * S_Graph
 123          UI     0.0   16.63   62.86  108.75  103.61   65.96   48.89   33.02    24.7   16.08
 124          UI   11.79    8.24    6.14     3.5    2.41    2.41    2.41     0.0
1                                          HEC-1 INPUT                                                    PAGE  4

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


 125          KK     CK7   CNAME      7R
 126          KO       0       0     0.0       0      22
 127          HC       3   1.039

 128          KK      7R   CNAME      7C
 129          KO       0       0     0.0       0      22
 130          RS       1    FLOW    -1.0     0.0
 131          RC    0.07    0.05    0.07  838.31  0.0143     0.0
              * 7R
 132          RX     0.0  176.15  323.64  433.66  552.88  673.72  781.28  878.91
 133          RY  1741.1 1736.67 1733.09 1735.44 1736.24 1734.46 1739.36 1741.61

 134          KK      K6
 135          KO       0       0     0.0       1      22
 136          BA   0.079
 137          LG    0.35    0.27   8.809   0.058     0.0
              * S_Graph
 138          UI     0.0   30.08  110.43  169.89  101.29   70.88   45.23   29.77   19.54   12.47
 139          UI    8.79    4.15    3.44    3.44     0.0

 140          KK     CK6   CNAME      6R
 141          KO       0       0     0.0       0      22
 142          HC       2   1.118

 143          KK      6R   CNAME      6C
 144          KO       0       0     0.0       0      22
 145          RS       1    FLOW    -1.0     0.0
 146          RC    0.07    0.05    0.07 1894.28  0.0102     0.0
              * 6R
 147          RX     0.0  141.23  211.23  316.23  439.23  562.23  703.51  764.51
 148          RY  1728.8 1726.01 1725.25 1717.71 1719.74 1722.51 1723.78  1723.8

 149          KK      K5
 150          KO       0       0     0.0       1      22
 151          BA  0.0502
 152          LG    0.35   0.321   7.556   0.095     0.0
              * S_Graph
 153          UI     0.0   15.87   61.87   96.75   88.62   53.67   31.08   18.34    9.91    6.06
 154          UI    2.57    2.57     0.0

 155          KK     CK5   CNAME      5R
 156          KO       0       0     0.0       0      22
 157          HC       2   1.168

 158          KK      5R   CNAME      5C
 159          KO       0       0     0.0       0      22
 160          RS       2    FLOW    -1.0     0.0
 161          RC    0.07    0.05    0.07 3449.11    0.01     0.0
              * 5R&13R
 162          RX     0.0  108.23  190.07  250.51  338.48  620.93  803.03 1085.49
 163          RY  1704.2 1698.16 1692.52 1690.76  1690.3 1693.02 1695.09 1705.54
1                                          HEC-1 INPUT                                                    PAGE  5

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


 164          KK      K4
 165          KO       0       0     0.0       1      22
 166          BA  0.3030
 167          LG    0.35   0.285   8.509   0.067     0.0
              * S_Graph
 168          UI     0.0   36.95   98.39  209.62  298.16  347.08   342.1  278.13  201.52  148.37
 169          UI  108.07   76.51   59.35   39.78   28.54   25.29   10.45    8.99    8.99    8.99
 170          UI    8.99     0.0

 171          KK     CK4   CNAME      4R
 172          KO       0       0     0.0       0      22
 173          HC       3   1.856

 174          KK      4R   CNAME      4C
 175          KO       0       0     0.0       0      22
 176          RS       1    FLOW    -1.0     0.0
 177          RC    0.07    0.05    0.07 1629.95  0.0084     0.0
              * 4R
```

```
 178          RX     0.0  108.23  190.07  250.51  338.48  620.93  803.03 1085.49
 179          RY  1704.2 1698.16 1692.52 1690.76  1690.3 1693.02 1695.09 1705.54

 180          KK      K3
 181          KO       0       0     0.0       1      22
 182          BA  0.0739
 183          LG    0.35   0.377   5.369   0.225     0.0
              * S_Graph
 184          UI     0.0   15.08    58.1  102.54   120.3   99.64   64.41   41.38    26.2   16.68
 185          UI   10.53    7.01    3.09    3.09    3.09     0.0

 186          KK    CK3L   CNAME      3R
 187          KO       0       0     0.0       0      22
 188          HC       2   1.931

 189          KK     K27
 190          KO       0       0     0.0       1      22
 191          BA   0.271
 192          LG    0.35   0.214  10.308   0.033   8.772
              * S_Graph
 193          UI     0.0   36.15  111.77  222.39  304.12  362.48  223.91  182.83  149.11  112.17
 194          UI   87.74   71.85   51.58   41.68   32.19   26.62   17.69   17.69    9.76    6.93
 195          UI    6.93    6.93    6.93    6.93     0.0

 196          KK     K28
 197          KO       0       0     0.0       1      22
 198          BA  0.3463
 199          LG    0.35   0.252   9.619   0.048  19.233
              * S_Graph
 200          UI     0.0   111.0  420.77  709.93  454.75  326.37  215.61  151.85   95.66   66.63
 201          UI   43.77   33.36   14.04   14.04   14.04     0.0
1                                          HEC-1 INPUT                                          PAGE  6

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


 202          KK    CK15   CNAME     15R
 203          KO       0       0     0.0       0      22
 204          HC       2   0.617

 205          KK     15R   CNAME     15C
 206          KO       0       0     0.0       0      22
 207          RS       1    FLOW    -1.0     0.0
 208          RC    0.07    0.05    0.07 1756.26  0.0109     0.0
              * 15R
 209          RX     0.0   131.7  199.71  290.47  356.95  433.85  514.08  573.11
 210          RY  1789.4 1785.33 1783.53 1778.29 1779.03 1782.91 1788.61  1794.5

 211          KK     K26
 212          KO       0       0     0.0       1      22
 213          BA   0.132
 214          LG    0.35   0.169  11.843   0.017   0.523
              * S_Graph
 215          UI     0.0   21.23    84.3  146.53  213.98  136.22  105.69    82.2   58.62   46.61
 216          UI   32.63   24.46    18.4   13.91   10.14    8.13    3.97    3.97    3.97    3.97
 217          UI     0.0

 218          KK   CK14R   CNAME     14R
 219          KO       0       0     0.0       0      22
 220          HC       2   0.750

 221          KK     K31
 222          KO       0       0     0.0       1      22
 223          BA   0.042
 224          LG    0.35    0.33     7.3   0.105    30.0
              * S_Graph
 225          UI     0.0   59.19  138.93   68.08   32.03   14.91    6.68    3.27     0.0

 226          KK     17R   CNAME     17C
 227          KO       0       0     0.0       0      22
 228          RS       2    FLOW    -1.0     0.0
 229          RC    0.07    0.05    0.07 3498.69  0.0617     0.0
              * 17R
 230          RX     0.0   86.05  119.05  168.05   198.2   238.2   314.2   373.2
 231          RY  2150.0  2129.8 2121.61 2103.15 2103.16  2115.7 2133.27 2144.81

 232          KK     K30
 233          KO       0       0     0.0       1      22
 234          BA  0.2755
 235          LG    0.35    0.33     7.3   0.105    30.0
              * S_Graph
 236          UI     0.0   93.69  350.79   575.8   358.4  256.36   166.3  116.96   72.31   50.43
 237          UI   32.03   22.66   11.44   11.44   11.44     0.0

 238          KK    CK16   CNAME     16R
 239          KO       0       0     0.0       0      22
 240          HC       2   0.318
1                                          HEC-1 INPUT                                          PAGE  7

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


 241          KK     16R   CNAME     16C
 242          KO       0       0     0.0       0      22
 243          RS       2    FLOW    -1.0     0.0
```

```
 244          RC    0.07    0.05    0.07 6151.36  0.0381     0.0
              * 16R
 245          RX     0.0    32.3   43.61   60.76    87.2  197.15  384.48  729.13
 246          RY  1921.1  1910.0  1905.2 1899.07 1903.45 1908.85 1912.74 1932.42

 247          KK     K29
 248          KO       0       0     0.0       1      22
 249          BA   0.226
 250          LG    0.35   0.294   8.258   0.074  25.246
              * S_Graph
 251          UI     0.0   24.59   53.11  120.15  170.13  220.37  253.44  159.08  134.26  114.18
 252          UI   95.39   74.93   60.67   53.68   41.58   31.42   27.38   22.08   18.85   13.78
 253          UI   12.03   12.03    5.91    4.71    4.71    4.71    4.71    4.71    4.71     0.0

 254          KK   CK14L   CNAME     14R
 255          KO       0       0     0.0       0      22
 256          HC       2   0.543

 257          KK    CK14   CNAME     14R
 258          KO       0       0     0.0       0      22
 259          HC       2   1.293

 260          KK     14R   CNAME     14C
 261          KO       0       0     0.0       0      22
 262          RS       2    FLOW    -1.0     0.0
 263          RC    0.07    0.05    0.07 5620.06  0.0121     0.0
              * 14R
 264          RX     0.0  143.28  226.72  272.03   378.6   505.0   618.6  709.22
 265          RY  1757.7 1752.06 1748.43 1747.34 1748.51 1755.83 1763.79 1764.99

 266          KK     K25
 267          KO       0       0     0.0       1      22
 268          BA  0.4209
 269          LG    0.35   0.226  10.024   0.037     0.0
              * S_Graph
 270          UI     0.0    36.1   49.22  127.97  200.94  265.02  316.39  341.96  341.16  313.24
 271          UI  255.31  203.65  164.64  131.61  104.84   83.31    67.2   55.35   40.15   35.75
 272          UI   24.71   24.71    16.0    8.79    8.79    8.79    8.79    8.79    8.79     0.0

 273          KK   CK13R   CNAME     13R
 274          KO       0       0     0.0       0      22
 275          HC       2   1.715

 276          KK     K33
 277          KO       0       0     0.0       1      22
 278          BA  0.0973
 279          LG    0.35   0.204  10.691   0.029  12.308
              * S_Graph
 280          UI     0.0   15.79    62.6  108.66  158.21  100.29   77.91   60.47   43.04   34.35
 281          UI   23.79   18.01   13.44   10.13     7.5    5.81    2.94    2.94    2.94    2.94
 282          UI     0.0
```



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

 283          KK     K34
 284          KO       0       0     0.0       1      22
 285          BA   0.225
 286          LG    0.35   0.267   8.953   0.056  14.425
              * S_Graph
 287          UI     0.0   65.96  250.89  440.77  303.35  215.65  149.16  104.35   67.33   47.68
 288          UI   32.31   22.35   13.45    8.75    8.75    8.75     0.0

 289          KK    CK18   CNAME     18R
 290          KO       0       0     0.0       0      22
 291          HC       2   0.322

 292          KK     18R   CNAME     18C
 293          KO       0       0     0.0       0      22
 294          RS       2    FLOW    -1.0     0.0
 295          RC    0.07    0.05    0.07 4071.62  0.0127     0.0
              * 18R
 296          RX     0.0  140.94  230.23  305.36  384.39  532.87  668.87  829.87
 297          RY  1742.0 1742.07 1741.69 1738.41 1741.17 1744.18 1747.55 1750.98

 298          KK     K32
 299          KO       0       0     0.0       1      22
 300          BA  0.2059
 301          LG    0.35   0.237   9.878   0.041   0.346
              * S_Graph
 302          UI     0.0   26.66   78.29  158.96  215.95  278.46  171.81  140.16   115.1    90.8
 303          UI   67.31   58.28   41.72   32.56    27.3   20.44   15.58   13.05   11.36    5.11
 304          UI    5.11    5.11    5.11    5.11    5.11

 305          KK   CK13L   CNAME     13R
 306          KO       0       0     0.0       0      22
 307          HC       2   0.529

 308          KK    CK13   CNAME     13R
 309          KO       0       0     0.0       0      22
 310          HC       2   2.242

 311          KK     13R   CNAME     13C
 312          KO       0       0     0.0       0      22
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```
 313          RS       1    FLOW    -1.0     0.0
 314          RC    0.07    0.05    0.07 2593.08  0.0071     0.0
              * 13R
 315          RX     0.0  238.17  396.39  499.25  649.86  779.91  896.53 1012.06
 316          RY  1707.9 1703.92 1701.03  1697.0 1696.95  1705.4 1713.82 1714.96

 317          KK     K19
 318          KO       0       0     0.0       1      22
 319          BA   0.108
 320          LG    0.35   0.245   9.766   0.045     0.0
              * S_Graph
 321          UI     0.0   12.37    29.5    64.2   89.11  122.18  110.94   74.97   63.27   53.15
 322          UI   43.04   32.86   28.39   22.89    17.1   14.33   11.84    9.48    7.23    6.05
 323          UI    6.05    2.76    2.37    2.37    2.37    2.37    2.37    2.37
1                                          HEC-1 INPUT                                                    PAGE  9

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


 324          KK   CK12R   CNAME     12R
 325          KO       0       0     0.0       0      22
 326          HC       2   2.350

 327          KK     K24
 328          KO       0       0     0.0       1      22
 329          BA  0.3195
 330          LG    0.35   0.345   7.072   0.114  26.883
              * S_Graph
 331          UI     0.0  104.43  394.13  659.21   418.5  300.22  196.59  138.45   86.83   60.51
 332          UI   39.33   29.32   13.06   13.06   13.06     0.0

 333          KK     K23
 334          KO       0       0     0.0       1      22
 335          BA  0.0797
 336          LG    0.35    0.33     7.3   0.105    30.0
              * S_Graph
 337          UI     0.0   62.01  214.82  146.92   86.25   48.86   26.42   14.87    7.86    4.74
 338          UI    4.74

 339          KK    CK21   CNAME     21R
 340          KO       0       0     0.0       0      22
 341          HC       2   0.399

 342          KK     21R   CNAME     21C
 343          KO       0       0     0.0       0      22
 344          RS       3    FLOW    -1.0     0.0
 345          RC    0.07    0.05    0.07 8569.08  0.0216     0.0
              * 21R
 346          RX     0.0  158.07   256.1   307.5  425.11  526.75  641.28  764.28
 347          RY  1870.5  1864.0 1860.04 1857.37  1850.3 1856.07 1869.46 1906.45

 348          KK     K22
 349          KO       0       0     0.0       1      22
 350          BA   0.627
 351          LG    0.35   0.297   8.116   0.078  18.225
              * S_Graph
 352          UI     0.0   58.81   97.25  228.18  361.55   441.7  579.26  584.98  382.85  329.91
 353          UI  287.32  247.82  209.09  166.77  141.86  128.26  102.44    80.0   69.97   64.41
 354          UI    45.6   45.08   31.72   28.78   28.78   20.99   11.27   11.27   11.27   11.27
 355          UI   11.27   11.27   11.27   11.27

 356          KK    CK20    CNAME     20R
 357          KO       0       0     0.0       0      22
 358          HC       2   1.026

 359          KK     20R   CNAME     20C
 360          KO       0       0     0.0       0      22
 361          RS       1    FLOW    -1.0     0.0
 362          RC    0.07    0.05    0.07 1188.63  0.0127     0.0
              * 20R
 363          RX     0.0   98.99   153.7   176.7   216.7  316.43  441.24  515.26
 364          RY  1722.0 1720.14 1719.86 1718.88  1719.9 1719.74 1719.34 1724.65
1                                          HEC-1 INPUT                                                    PAGE 10

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


 365          KK     K21
 366          KO       0       0     0.0       1      22
 367          BA   0.133
 368          LG    0.35   0.328   7.365   0.102   0.175
              * S_Graph
 369          UI     0.0   18.83   63.83  123.18  174.74  164.89  108.34   88.05   69.04   50.39
 370          UI   41.81   29.91    22.7   18.17   14.44    9.37    9.22     5.1    3.61    3.61
 371          UI    3.61    3.61     0.0

 372          KK    CK19   CNAME     19R
 373          KO       0       0     0.0       0      22
 374          HC       2   1.159

 375          KK     19R   CNAME     19C
 376          KO       0       0     0.0       0      22
 377          RS       2    FLOW    -1.0     0.0
 378          RC    0.07    0.05    0.07 2871.34  0.0106     0.0
              * 19R
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379          RX     0.0  223.89  292.04  376.47  438.47  492.47  574.47  678.92
380          RY  1710.8 1706.21  1704.9  1699.1 1699.74 1707.72  1707.8  1707.8

381          KK     K20
382          KO       0       0     0.0       1      22
383          BA  0.1849
384          LG    0.35   0.184   11.39   0.021     0.0
             * S_Graph
385          UI     0.0   21.68   53.82  115.64  159.04  226.11  176.83  127.78  107.76   89.75
386          UI   71.36   54.81   47.82   37.23    27.7   23.82   18.22   16.31   10.61   10.61
387          UI    8.34    4.16    4.16    4.16    4.16    4.16    4.16     0.0

388          KK   CK12L   CNAME     12R
389          KO       0       0     0.0       0      22
390          HC       2   1.344

391          KK    CK12   CNAME     12R
392          KO       0       0     0.0       0      22
393          HC       2   3.694

394          KK     12R   CNAME     12C
395          KO       0       0     0.0       0      22
396          RS       2    FLOW    -1.0     0.0
397          RC    0.07    0.05    0.07 4130.51  0.0057     0.0
             * 12R
398          RX     0.0    87.0   126.0   175.0   253.0   311.0   379.0  457.64
399          RY  1950.9 1920.02 1906.06 1889.62 1874.16 1881.93 1893.97 1910.23

400          KK     K15
401          KO       0       0     0.0       1      22
402          BA   0.235
403          LG    0.35   0.242   9.807   0.044     0.0
             * S_Graph
404          UI     0.0   21.68   34.76   84.66   132.0  170.85  197.79  207.81  196.82  166.03
405          UI  131.05  103.01   81.82   63.36    49.6   39.41   32.24   22.98   18.79   14.84
406          UI   14.24    5.28    5.28    5.28    5.28    5.28    5.28     0.0
```



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


407          KK     K17
408          KO       0       0     0.0       1      22
409          BA  0.1586
410          LG    0.35   0.174  11.679   0.019     0.0
             * S_Graph
411          UI     0.0   13.69   18.95   48.95   76.73  101.12  120.24  130.05  129.11  117.85
412          UI   95.43   76.24   61.24   49.01   39.38   30.54    25.0   20.99   14.54   12.96
413          UI    9.37    9.37    5.27    3.33    3.33    3.33    3.33    3.33    3.33     0.0

414          KK     K18
415          KO       0       0     0.0       1      22
416          BA  0.1282
417          LG    0.35   0.178  11.562    0.02     0.0
             * S_Graph
418          UI     0.0   14.85   36.27   78.72  114.42  137.01  140.26  122.34   91.87   67.87
419          UI   50.55    36.9   27.45   20.49    15.4   10.17    9.46    3.61    3.61    3.61
420          UI    3.61    3.61     0.0

421          KK    CK23   CNAME     23R
422          KO       0       0     0.0       0      22
423          HC       2   0.287

424          KK     23R   CNAME     23C
425          KO       0       0     0.0       0      22
426          RS       2    FLOW    -1.0     0.0
427          RC    0.07    0.05    0.07 4550.66  0.0091     0.0
             * 23R
428          RX     0.0  188.22  282.03  356.92   455.0  557.65  631.98  724.74
429          RY  1711.9 1708.89 1707.98  1708.0 1707.88  1709.0 1710.01 1711.14

430          KK     K16
431          KO       0       0     0.0       1      22
432          BA  0.2250
433          LG    0.35   0.213  10.356   0.032     0.0
             * S_Graph
434          UI     0.0   20.33   31.21   77.31  120.14  157.33  183.17  194.83  187.73  161.65
435          UI  128.98  101.72   80.66   63.67   49.99   39.85   32.07   23.89   20.48   13.92
436          UI   13.92    8.22    4.95    4.95    4.95    4.95    4.95    4.95     0.0

437          KK    CK22   CNAME     22R
438          KO       0       0     0.0       0      22
439          HC       2   0.512

440          KK     22R   CNAME     22C
441          KO       0       0     0.0       0      22
442          RS       2    FLOW    -1.0     0.0
443          RC    0.07    0.05    0.07 3227.13  0.0078     0.0
             * 22R
444          RX     0.0    87.0   126.0   175.0   253.0   311.0   379.0  457.64
445          RY  1950.9 1920.02 1906.06 1889.62 1874.16 1881.93 1893.97 1910.23
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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446          KK    CK3R   CNAME      3R
447          KO       0       0     0.0       0      22
448          HC       3   4.442

449          KK     CK3   CNAME      3R
450          KO       0       0     0.0       0      22
451          HC       2   6.371

452          KK      3R   CNAME      3C
453          KO       0       0     0.0       0      22
454          RS       1    FLOW    -1.0     0.0
455          RC    0.07    0.05    0.07  111.27  0.0156     0.0
             * 3R
456          RX     0.0  145.34  201.25  239.32  284.05  342.36  405.01  501.05
457          RY  1671.2 1669.03 1668.46 1667.98 1668.53 1668.14 1672.63 1673.18

458          KK     K35
459          KO       0       0     0.0       1      22
460          BA   0.302
461          LG    0.35   0.163  12.004   0.016     0.0
             * S_Graph
462          UI     0.0   18.28   18.28   33.41   62.87   90.39  114.91  136.66  156.86  167.41
463          UI  175.19  174.11  165.94  150.12  128.99  108.65   93.71   80.83   68.48   58.65
464          UI   50.86   41.46   35.83   31.71   28.03   21.46   19.38   17.01   12.51   12.51
465          UI   12.51    7.62    4.45    4.45    4.45    4.45    4.45    4.45    4.45    4.45
466          UI    4.45     0.0

467          KK      K2
468          KO       0       0     0.0       1      22
469          BA  0.0009
470          LG    0.35    0.36   6.805   0.128     0.0
             * S_Graph
471          UI     0.0    7.35     0.0

472          KK     CK2   CNAME      2R
473          KO       0       0     0.0       0      22
474          HC       3   6.674

475          KK      2R   CNAME      2C
476          KO       0       0     0.0       0      22
477          RS       1    FLOW    -1.0     0.0
478          RC    0.07    0.05    0.07 1037.71  0.0052     0.0
             * 2R
479          RX     0.0    74.0   166.0  221.08  280.08   500.1  783.07  994.37
480          RY  1660.0 1653.35  1652.0 1650.94 1651.55  1653.0 1654.01 1659.84

481          KK      K1
482          KO       0       0     0.0       1      22
483          BA  0.0777
484          LG    0.35    0.36   6.805   0.128     0.0
             * S_Graph
485          UI     0.0   41.38  149.85   186.3  112.11   56.53   28.79   15.09    5.03    4.97
486          UI     0.0
```

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

487          KK     CK1   CNAME      1R
488          KO       0       0     0.0       0      22
489          HC       2   6.752

490          KK      1R   CNAME      1C
491          KO       0       0     0.0       0      22
492          RN      1R
493          ZZ
```

1

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          SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE    (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   32        K13
               .
               .
   39          .         K14
               .           .
               .           .
   46      CK24...........
              V
              V
   49       24R
               .
               .
   55          .          K9
               .           V
               .           V
   61          .          9R
               .           .
               .           .
   67          .           .          K8
               .           .           .
               .           .           .
```

```
 73          .        CK8............
             .         V
             .         V
 76          .        8R
             .         .
             .         .
 82          .         .        K11
             .         .          .
             .         .          .
 88          .         .          .        K12
             .         .          .          .
             .         .          .          .
 94          .         .       CK11............
             .         .          V
             .         .          V
 97          .         .       11R
             .         .          .
             .         .          .
103          .         .          .        K10
             .         .          .          .
             .         .          .          .
110          .         .       CK10............
             .         .          V
             .         .          V
113          .         .       10R
             .         .          .
             .         .          .
119          .         .          .         K7
             .         .          .          .
             .         .          .          .
125          .        CK7........................
             .         V
             .         V
128          .        7R
             .         .
             .         .
134          .         .         K6
             .         .          .
             .         .          .
140          .        CK6............
             .         V
             .         V
143          .        6R
             .         .
             .         .
149          .         .         K5
             .         .          .
             .         .          .
155          .        CK5............
             .         V
             .         V
158          .        5R
             .         .
             .         .
164          .         .         K4
             .         .          .
             .         .          .
171       CK4........................
           V
           V
174       4R
           .
           .
180        .         K3
           .          .
           .          .
186     CK3L............
           .
           .
189        .        K27
           .          .
           .          .
196        .         .        K28
           .         .          .
           .         .          .
202        .       CK15............
           .         V
           .         V
205        .       15R
           .         .
           .         .
211        .         .        K26
           .         .          .
           .         .          .
218        .      CK14R............
           .         .
           .         .
221        .         .        K31
           .         .          V
           .         .          V
226        .         .        17R
           .         .          .
           .         .          .
232        .         .          .        K30
           .         .          .          .
```

```
238          .          .          .          .
             .          .       CK16...........
             .          .          V
             .          .          V
241          .          .        16R
             .          .          .
             .          .          .
247          .          .          .         K29
             .          .          .           .
             .          .          .           .
254          .          .      CK14L...........
             .          .          .
             .          .          .
257          .       CK14...........
             .          V
             .          V
260          .        14R
             .          .
             .          .
266          .          .        K25
             .          .          .
             .          .          .
273          .      CK13R...........
             .          .
             .          .
276          .          .        K33
             .          .          .
             .          .          .
283          .          .          .         K34
             .          .          .           .
             .          .          .           .
289          .          .      CK18...........
             .          .          V
             .          .          V
292          .          .        18R
             .          .          .
             .          .          .
298          .          .          .         K32
             .          .          .           .
             .          .          .           .
305          .          .      CK13L...........
             .          .          .
             .          .          .
308          .       CK13...........
             .          V
             .          V
311          .        13R
             .          .
             .          .
317          .          .        K19
             .          .          .
             .          .          .
324          .      CK12R...........
             .          .
             .          .
327          .          .        K24
             .          .          .
             .          .          .
333          .          .          .         K23
             .          .          .           .
             .          .          .           .
339          .          .      CK21...........
             .          .          V
             .          .          V
342          .          .        21R
             .          .          .
             .          .          .
348          .          .          .         K22
             .          .          .           .
             .          .          .           .
356          .          .      CK20...........
             .          .          V
             .          .          V
359          .          .        20R
             .          .          .
             .          .          .
365          .          .          .         K21
             .          .          .           .
             .          .          .           .
372          .          .      CK19...........
             .          .          V
             .          .          V
375          .          .        19R
             .          .          .
             .          .          .
381          .          .          .         K20
             .          .          .           .
             .          .          .           .
388          .          .      CK12L...........
             .          .          .
             .          .          .
391          .       CK12...........
             .          V
             .          V
394          .        12R
```

```
                .          .
                .          .
  400           .          .        K15
                .          .          .
                .          .          .
  407           .          .          .        K17
                .          .          .          .
                .          .          .          .
  414           .          .          .          .        K18
                .          .          .          .          .
                .          .          .          .          .
  421           .          .          .       CK23............
                .          .          .          V
                .          .          .          V
  424           .          .          .        23R
                .          .          .          .
                .          .          .          .
  430           .          .          .          .        K16
                .          .          .          .          .
                .          .          .          .          .
  437           .          .          .       CK22............
                .          .          .          V
                .          .          .          V
  440           .          .          .        22R
                .          .          .          .
                .          .          .          .
  446           .       CK3R........................
                .          .
                .          .
  449        CK3............
               V
               V
  452         3R
                .
                .
  458           .        K35
                .          .
                .          .
  467           .          .          K2
                .          .           .
                .          .           .
  472        CK2........................
               V
               V
  475         2R
                .
                .
  481           .         K1
                .          .
                .          .
  487        CK1............
               V
               V
  490         1R
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN   1998              *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   27JAN05  TIME  17:31:45  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

HEC-1 Analysis using WMS
New River West Tributaries FDS - FCD 2003 C057
Basin K - 100-Year 6-Hour Storm Event
January 2005 (Sub-basin K8; revised flowpath)

```
  6 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

  7 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

 12 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME

 17 IN          TIME DATA FOR INPUT TIME SERIES
                       JXMIN          15  TIME INTERVAL IN MINUTES
                      JXDATE     28APR 4  STARTING DATE
                      JXTIME           0  STARTING TIME
```

```
22 IN          TIME DATA FOR INPUT TIME SERIES
                    JXMIN          15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME           0  STARTING TIME

27 IN          TIME DATA FOR INPUT TIME SERIES
                    JXMIN          15  TIME INTERVAL IN MINUTES
                   JXDATE     28APR 4  STARTING DATE
                   JXTIME           0  STARTING TIME

   IT          HYDROGRAPH TIME DATA
                     NMIN           5  MINUTES IN COMPUTATION INTERVAL
                    IDATE     28APR 4  STARTING DATE
                    ITIME        0000  STARTING TIME
                       NQ         200  NUMBER OF HYDROGRAPH ORDINATES
                   NDDATE     28APR 4  ENDING DATE
                   NDTIME        1635  ENDING TIME
                    ICENT          19  CENTURY MARK

              COMPUTATION INTERVAL     .08 HOURS
                   TOTAL TIME BASE   16.58 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

 8 JD          INDEX STORM NO. 1
                    STRM        3.37  PRECIPITATION DEPTH
                    TRDA         .01  TRANSPOSITION DRAINAGE AREA

 9 PI            PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

13 JD          INDEX STORM NO. 2
                    STRM        3.35  PRECIPITATION DEPTH
                    TRDA         .50  TRANSPOSITION DRAINAGE AREA

14 PI            PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .05       .05       .05       .15       .15       .15       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

18 JD          INDEX STORM NO. 3
                    STRM        3.33  PRECIPITATION DEPTH
                    TRDA        1.00  TRANSPOSITION DRAINAGE AREA

19 PI            PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .06       .06       .06       .12       .12       .12       .03       .03
                  .03       .01       .01       .01       .01       .01       .01       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

23 JD          INDEX STORM NO. 4
                    STRM        3.24  PRECIPITATION DEPTH
                    TRDA        5.00  TRANSPOSITION DRAINAGE AREA

24 PI            PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .01       .01       .01       .01       .01       .01       .03
                  .03       .03       .06       .06       .06       .08       .08       .08       .05       .05
                  .05       .02       .02       .02       .01       .01       .01       .01       .01       .01
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00

28 JD          INDEX STORM NO. 5
                    STRM        3.17  PRECIPITATION DEPTH
                    TRDA       10.00  TRANSPOSITION DRAINAGE AREA

29 PI            PRECIPITATION PATTERN
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .01
                  .01       .01       .00       .00       .00       .00       .00       .00       .00       .00
                  .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
                .01       .01       .01       .01       .01       .01       .02       .02       .02       .03
                .03       .03       .06       .06       .06       .07       .07       .07       .04       .04
                .04       .02       .02       .02       .01       .01       .01       .01       .01       .01
                .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
                .00       .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 32 KK    *       K13  *
          *            *
          **************

 33 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 34 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .08  SUBBASIN AREA

 35 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .17  MOISTURE DEFICIT
                       PSIF       11.95  WETTING FRONT SUCTION
                      XKSAT         .02  HYDRAULIC CONDUCTIVITY
                      RTIMP        1.98  PERCENT IMPERVIOUS AREA

 34 UI          INPUT UNITGRAPH,  24 ORDINATES,  VOLUME = 1.00
                        .0      10.8      32.1      64.9      88.3     112.1      69.0      56.4      46.2      36.1
                      27.1      23.3      16.5      13.1      10.8       8.3       6.0       5.3       4.2       2.1
                       2.1       2.1       2.1       2.1
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 39 KK    *       K14  *
          *            *
          **************

 40 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 41 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .30  SUBBASIN AREA

 42 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .18  MOISTURE DEFICIT
                       PSIF       11.45  WETTING FRONT SUCTION
                      XKSAT         .02  HYDRAULIC CONDUCTIVITY
                      RTIMP        7.48  PERCENT IMPERVIOUS AREA

 41 UI          INPUT UNITGRAPH,  25 ORDINATES,  VOLUME = 1.00
                        .0      37.7     103.3     216.8     292.4     406.9     257.6     207.0     171.9     138.9
                     103.9      87.2      69.3      50.8      42.4      32.6      28.0      18.5      18.5      12.3
                       7.2       7.2       7.2       7.2       7.2
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
```

```
 46 KK     *      CK24  *        CNAME     24R
           *            *
           **************

 47 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 48 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

           **************
           *            *
 49 KK     *       24R  *        CNAME     24C
           *            *
           **************

 50 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 51 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 52 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       3448.  REACH LENGTH
                        SEL       .0099  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 54 RY        ELEVATION   1704.20   1698.16   1692.52   1690.76   1690.30   1693.02   1695.09   1705.54
 53 RX        DISTANCE        .00    108.23    190.07    250.51    338.48    620.93    803.03   1085.49

                                                                  ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      6.79     21.93     44.08     72.41    106.01    144.84    187.25    231.77    278.41
          OUTFLOW        .00    153.37    789.57   2062.64   4354.73   7626.79  11782.40  16903.25  22884.92  29706.55
        ELEVATION    1690.30   1691.10   1691.90   1692.71   1693.51   1694.31   1695.11   1695.91   1696.72   1697.52

          STORAGE     327.17    378.16    431.44    487.01    544.87    605.02    667.46    732.19    799.00    867.24
          OUTFLOW   37353.74  45814.37  55109.61  65244.16  76224.59  88058.77 100755.50 114324.50 129010.00 144692.00
        ELEVATION    1698.32   1699.12   1699.93   1700.73   1701.53   1702.33   1703.13   1703.94   1704.74   1705.54

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    22885. TO   144692.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

           **************
           *            *
 55 KK     *        K9  *
           *            *
           **************

 56 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
```

```
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

 57 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .08  SUBBASIN AREA

 58 LG        GREEN AND AMPT LOSS RATE
                    STRTL        .32  STARTING LOSS
                      DTH        .23  MOISTURE DEFICIT
                     PSIF       8.82  WETTING FRONT SUCTION
                    XKSAT        .07  HYDRAULIC CONDUCTIVITY
                    RTIMP       5.26  PERCENT IMPERVIOUS AREA

 57 UI        INPUT UNITGRAPH,  12 ORDINATES,  VOLUME = 1.00
                     .0      49.9     179.2     170.2      97.5      57.2      33.3      20.4      11.8       5.8
                    4.4       4.4
                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 61 KK    *        9R  *        CNAME      9C
          *            *
          **************

 62 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 63 RS        STORAGE ROUTING
                    NSTPS          1  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

 64 RC        NORMAL DEPTH CHANNEL
                      ANL       .070  LEFT OVERBANK N-VALUE
                     ANCH       .050  MAIN CHANNEL N-VALUE
                      ANR       .070  RIGHT OVERBANK N-VALUE
                    RLNTH      2027.  REACH LENGTH
                      SEL      .0075  ENERGY SLOPE
                    ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 66 RY       ELEVATION   1773.20   1771.73   1770.86   1769.94   1769.97   1770.18   1770.85   1771.51
 65 RX       DISTANCE        .00     27.70     51.81     77.30    158.44    191.92    226.41    260.41
                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .68      1.65      2.74      3.94      5.24      6.66      8.18      9.81     11.55
          OUTFLOW        .00     10.03     39.35     86.21    148.52    225.94    322.18    436.44    566.95    713.96
        ELEVATION    1769.94   1770.11   1770.28   1770.45   1770.63   1770.80   1770.97   1771.14   1771.31   1771.48

          STORAGE      13.37     15.23     17.12     19.03     20.97     22.93     24.92     26.94     28.98     31.04
          OUTFLOW     882.32   1068.12   1269.96   1487.24   1719.62   1966.85   2228.71   2505.00   2795.56   3100.30
        ELEVATION    1771.66   1771.83   1772.00   1772.17   1772.34   1772.51   1772.69   1772.86   1773.03   1773.20


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 67 KK    *        K8  *
          *            *
          **************

 68 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
```

```
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 69 BA         SUBBASIN CHARACTERISTICS
                    TAREA        .04  SUBBASIN AREA

 70 LG         GREEN AND AMPT LOSS RATE
                    STRTL        .35  STARTING LOSS
                      DTH        .19  MOISTURE DEFICIT
                     PSIF      11.07  WETTING FRONT SUCTION
                    XKSAT        .03  HYDRAULIC CONDUCTIVITY
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

 69 UI         INPUT UNITGRAPH,  12 ORDINATES,  VOLUME = 1.00
                     .0      24.4      87.3      89.0      50.6      30.0      18.0      10.7       6.4       3.5
                    2.2       2.2
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 73 KK    *       CK8  *        CNAME      8R
          *            *
          **************

 74 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

 75 HC         HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 76 KK    *        8R  *        CNAME      8C
          *            *
          **************

 77 KO         OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 78 RS         STORAGE ROUTING
                   NSTPS          1  NUMBER OF SUBREACHES
                    ITYP       FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC      -1.00  INITIAL CONDITION
                       X        .00 WORKING R AND D COEFFICIENT

 79 RC         NORMAL DEPTH CHANNEL
                     ANL       .070  LEFT OVERBANK N-VALUE
                    ANCH       .050  MAIN CHANNEL N-VALUE
                     ANR       .070  RIGHT OVERBANK N-VALUE
                   RLNTH       934.  REACH LENGTH
                     SEL      .0099  ENERGY SLOPE
                   ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 81 RY        ELEVATION   1741.70   1741.70   1741.12   1740.46   1740.16   1741.02   1741.10   1741.10
 80 RX        DISTANCE        .00     19.37     38.61     56.43     89.94    122.75    145.24    167.96
```

***

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	.00	.01	.04	.10	.17	.25	.35	.45	.57	.69
OUTFLOW	.00	.17	1.09	3.22	7.11	13.12	20.85	30.35	41.70	54.95
ELEVATION	1740.16	1740.24	1740.32	1740.40	1740.48	1740.57	1740.65	1740.73	1740.81	1740.89
STORAGE	.82	.96	1.16	1.38	1.62	1.85	2.10	2.34	2.59	2.85
OUTFLOW	70.19	88.31	110.70	138.72	170.32	205.27	243.46	284.79	329.20	374.73
ELEVATION	1740.97	1741.05	1741.13	1741.21	1741.29	1741.38	1741.46	1741.54	1741.62	1741.70

*** ***

```
            **************
            *            *
 82 KK      *       K11  *
            *            *
            **************

 83 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 84 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .31  SUBBASIN AREA

 85 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .27  STARTING LOSS
                        DTH         .20  MOISTURE DEFICIT
                       PSIF        6.95  WETTING FRONT SUCTION
                      XKSAT         .18  HYDRAULIC CONDUCTIVITY
                      RTIMP       27.24  PERCENT IMPERVIOUS AREA

 84 UI          INPUT UNITGRAPH,  19 ORDINATES,  VOLUME = 1.00
                        .0      63.0     241.0     410.2     519.0     312.8     241.9     175.9     127.6      94.1
                      64.5      48.6      35.3      26.2      17.6      10.3      10.3      10.3      10.3
```

***

*** ***

```
            **************
            *            *
 88 KK      *       K12  *
            *            *
            **************

 89 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

 90 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .12  SUBBASIN AREA

 91 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .25  STARTING LOSS
                        DTH         .15  MOISTURE DEFICIT
                       PSIF        7.30  WETTING FRONT SUCTION
                      XKSAT         .17  HYDRAULIC CONDUCTIVITY
                      RTIMP       30.00  PERCENT IMPERVIOUS AREA

 90 UI          INPUT UNITGRAPH,  12 ORDINATES,  VOLUME =  .99
                        .0      62.6     223.4     261.0     147.8      90.7      56.8      34.0      20.5      13.4
                       6.0       6.0
```

***

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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 94 KK    *      CK11  *        CNAME     11R
          *            *
          **************

 95 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 96 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 97 KK    *       11R  *        CNAME     11C
          *            *
          **************

 98 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 99 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

100 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       6211.  REACH LENGTH
                        SEL       .0200  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
102 RY        ELEVATION   1950.90   1920.02   1906.06   1889.62   1874.16   1881.93   1893.97   1910.23
101 RX        DISTANCE        .00     87.00    126.00    175.00    253.00    311.00    379.00    457.64

                                                          ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00     14.55     58.18    128.50    223.61    340.43    476.20    630.16    802.29    992.33
          OUTFLOW        .00    681.07   4384.95  13361.29  27913.52  49318.10  77289.74 112074.10 154641.40 210290.80
        ELEVATION    1874.16   1878.20   1882.24   1886.28   1890.32   1894.35   1898.39   1902.43   1906.47   1910.51

          STORAGE    1193.73   1401.63   1616.04   1837.00   2064.51   2298.58   2539.20   2786.37   3040.09   3300.37
          OUTFLOW  277455.60 352844.60 436310.50 527756.10 627115.10 734343.30 849414.60 972317.501103053.001241629.00
        ELEVATION    1914.55   1918.59   1922.63   1926.67   1930.71   1934.74   1938.78   1942.82   1946.86   1950.90


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    13361. TO  1241629.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
103 KK    *       K10  *
          *            *
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          **************

104 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

105 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .42  SUBBASIN AREA

106 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .28  STARTING LOSS
                        DTH         .19  MOISTURE DEFICIT
                       PSIF        7.72  WETTING FRONT SUCTION
                      XKSAT         .13  HYDRAULIC CONDUCTIVITY
                      RTIMP       16.11  PERCENT IMPERVIOUS AREA

105 UI          INPUT UNITGRAPH,  26 ORDINATES,  VOLUME = 1.00
                        .0      50.2     130.5     276.8     376.7     541.2     371.5     285.8     240.1     197.1
                     151.5     121.5     103.3      75.3      60.6      51.4      38.5      31.0      24.5      24.5
                      10.9       9.6       9.6       9.6       9.6       9.6
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
110 KK    *      CK10  *        CNAME     10R
          *            *
          **************

111 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


112 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
113 KK    *       10R  *        CNAME     10C
          *            *
          **************

114 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

115 RS          STORAGE ROUTING
                     NSTPS           1  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

116 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       2656.  REACH LENGTH
                       SEL       .0105  ENERGY SLOPE
```

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                    ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 118 RY       ELEVATION   1773.80   1771.81   1771.00   1770.27   1771.04   1771.09   1772.82   1774.78
 117 RX       DISTANCE        .00    154.06    243.55    295.18    337.60    412.12    503.14    589.15

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .22       .87      1.95      4.19      7.37     11.10     15.38     20.11     25.30
          OUTFLOW        .00      2.62     16.61     48.96    108.46    248.34    441.93    691.95    999.04   1362.99
        ELEVATION    1770.27   1770.51   1770.74   1770.98   1771.22   1771.46   1771.69   1771.93   1772.17   1772.41

          STORAGE      30.93     37.01     43.51     50.43     57.77     65.52     73.53     81.68     89.98     98.44
          OUTFLOW    1785.26   2268.07   2813.87   3422.29   4094.90   4840.31   5698.68   6623.26   7613.20   8668.02
        ELEVATION    1772.64   1772.88   1773.12   1773.36   1773.59   1773.83   1774.07   1774.31   1774.54   1774.78


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
 119 KK    *        K7  *
           *            *
           **************

 120 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 121 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .07  SUBBASIN AREA

 122 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .35  MOISTURE DEFICIT
                       PSIF        4.15  WETTING FRONT SUCTION
                      XKSAT         .43  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 121 UI          INPUT UNITGRAPH,  17 ORDINATES,  VOLUME = 1.00
                        .0      16.6      62.9     108.8     103.6      66.0      48.9      33.0      24.7      16.1
                      11.8       8.2       6.1       3.5       2.4       2.4       2.4

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
 125 KK    *       CK7  *        CNAME      7R
           *            *
           **************

 126 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 127 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
 128 KK    *        7R  *        CNAME      7C
```

```
            *            *
            **************

129 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


               HYDROGRAPH ROUTING DATA

130 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

131 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH        838.  REACH LENGTH
                        SEL       .0143  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                           --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
133 RY        ELEVATION   1741.10   1736.67   1733.09   1735.44   1736.24   1734.46   1739.36   1741.61
132 RX        DISTANCE        .00    176.15    323.64    433.66    552.88    673.72    781.28    878.91

                                                    ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .17       .68      1.53      2.88      4.91      7.75     11.66     16.25     21.09
          OUTFLOW        .00     10.08     63.98    188.64    391.95    763.69   1299.04   2143.18   3597.30   5400.46
        ELEVATION    1733.09   1733.54   1733.99   1734.44   1734.88   1735.33   1735.78   1736.23   1736.68   1737.13

          STORAGE      26.16     31.47     37.02     42.81     48.84     55.15     61.79     68.74     76.01     83.51
          OUTFLOW    7531.19   9982.94  12752.19  15837.45  19237.36  22893.56  26889.04  31226.90  35953.45  41298.24
        ELEVATION    1737.57   1738.02   1738.47   1738.92   1739.37   1739.82   1740.26   1740.71   1741.16   1741.61

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     2143. TO    41298.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
134 KK      *        K6  *
            *            *
            **************

135 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


               SUBBASIN RUNOFF DATA

136 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .08  SUBBASIN AREA

137 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .27  MOISTURE DEFICIT
                       PSIF        8.81  WETTING FRONT SUCTION
                      XKSAT         .06  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

136 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                        .0      30.1     110.4     169.9     101.3      70.9      45.2      29.8      19.5      12.5
                       8.8       4.2       3.4       3.4

                                                    ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
          **************
          *            *
140 KK    *       CK6  *        CNAME      6R
          *            *
          **************

141 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

142 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
143 KK    *        6R  *        CNAME      6C
          *            *
          **************

144 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

145 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

146 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1894.  REACH LENGTH
                        SEL       .0102  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
148 RY        ELEVATION   1728.80   1726.01   1725.25   1717.71   1719.74   1722.51   1723.78   1723.80
147 RX        DISTANCE        .00    141.23    211.23    316.23    439.23    562.23    703.51    764.51
                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .55      2.21      4.97      8.80     13.52     19.11     25.56     32.88     41.36
          OUTFLOW        .00     16.81    106.71    314.62    686.43   1242.95   1994.81   2962.07   4164.19   5815.90
        ELEVATION    1717.71   1718.29   1718.88   1719.46   1720.04   1720.63   1721.21   1721.80   1722.38   1722.96

          STORAGE      51.67     64.44     78.20     92.16    107.00    123.02    139.80    157.33    175.62    194.65
          OUTFLOW    7829.16  10214.02  13061.00  16300.67  20127.88  24372.47  29032.66  34107.42  39599.52  45512.88
        ELEVATION    1723.55   1724.13   1724.71   1725.30   1725.88   1726.47   1727.05   1727.63   1728.22   1728.80

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    34107. TO    45513.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
149 KK    *         K5 *
          *            *
          **************
```

```
150 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

151 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

152 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .32  MOISTURE DEFICIT
                       PSIF        7.56  WETTING FRONT SUCTION
                      XKSAT         .09  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

151 UI          INPUT UNITGRAPH,  12 ORDINATES,  VOLUME = 1.00
                       .0      15.9      61.9      96.8      88.6      53.7      31.1      18.3       9.9       6.1
                      2.6       2.6
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
155 KK     *       CK5  *        CNAME      5R
           *            *
           **************

156 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


157 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
158 KK     *        5R  *        CNAME      5C
           *            *
           **************

159 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

160 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

161 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       3449.  REACH LENGTH
                        SEL       .0100  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
```

```
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
163 RY        ELEVATION   1704.20   1698.16   1692.52   1690.76   1690.30   1693.02   1695.09   1705.54
162 RX        DISTANCE        .00    108.23    190.07    250.51    338.48    620.93    803.03   1085.49

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      6.79     21.93     44.09     72.42    106.04    144.88    187.29    231.83    278.48
          OUTFLOW        .00    154.14    793.55   2073.03   4376.67   7665.21  11841.76  16988.40  23000.21  29856.20
        ELEVATION    1690.30   1691.10   1691.90   1692.71   1693.51   1694.31   1695.11   1695.91   1696.72   1697.52

          STORAGE     327.25    378.25    431.55    487.13    545.00    605.17    667.62    732.37    799.19    867.45
          OUTFLOW   37541.92  46045.18  55387.24  65572.84  76608.59  88502.38 101263.10 114900.40 129659.90 145420.90
        ELEVATION    1698.32   1699.12   1699.93   1700.73   1701.53   1702.33   1703.13   1703.94   1704.74   1705.54

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    23000. TO   145421.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
164 KK    *        K4  *
          *            *
          **************

165 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

166 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .30  SUBBASIN AREA

167 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .28  MOISTURE DEFICIT
                       PSIF        8.51  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

166 UI          INPUT UNITGRAPH,  21 ORDINATES,  VOLUME = 1.00
                        .0      37.0      98.4     209.6     298.2     347.1     342.1     278.1     201.5     148.4
                     108.1      76.5      59.3      39.8      28.5      25.3      10.4       9.0       9.0       9.0
                       9.0

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
171 KK    *       CK4  *        CNAME      4R
          *            *
          **************

172 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


173 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***


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            *            *
174 KK      *        4R  *        CNAME      4C
            *            *
            **************

175 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

176 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

177 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1630.  REACH LENGTH
                        SEL       .0084  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
179 RY        ELEVATION   1704.20   1698.16   1692.52   1690.76   1690.30   1693.02   1695.09   1705.54
178 RX        DISTANCE        .00    108.23    190.07    250.51    338.48    620.93    803.03   1085.49

                                                  ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      3.21     10.37     20.84     34.22     50.11     68.46     88.51    109.55    131.60
          OUTFLOW        .00    141.27    727.30   1899.97   4011.29   7025.28  10853.15  15570.13  21080.04  27363.66
        ELEVATION    1690.30   1691.10   1691.90   1692.71   1693.51   1694.31   1695.11   1695.91   1696.72   1697.52

          STORAGE     154.65    178.75    203.94    230.20    257.55    285.98    315.50    346.09    377.68    409.93
          OUTFLOW   34407.74  42201.10  50763.24  60098.50  70212.94  81113.77  92809.20 105308.00 118835.30 133280.50
        ELEVATION    1698.32   1699.12   1699.93   1700.73   1701.53   1702.33   1703.13   1703.94   1704.74   1705.54

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    27364. TO   133280.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
180 KK      *        K3  *
            *            *
            **************

181 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

182 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .07  SUBBASIN AREA

183 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .38  MOISTURE DEFICIT
                       PSIF        5.37  WETTING FRONT SUCTION
                      XKSAT         .22  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

182 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                         .0      15.1      58.1     102.5     120.3      99.6      64.4      41.4      26.2      16.7
                       10.5       7.0       3.1       3.1       3.1

                                                  ***
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 186 KK     *      CK3L  *        CNAME      3R
            *            *
            **************

 187 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 188 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 189 KK     *       K27  *
            *            *
            **************

 190 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

               SUBBASIN RUNOFF DATA

 191 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .27  SUBBASIN AREA

 192 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .21  MOISTURE DEFICIT
                       PSIF       10.31  WETTING FRONT SUCTION
                      XKSAT         .03  HYDRAULIC CONDUCTIVITY
                      RTIMP        8.77  PERCENT IMPERVIOUS AREA

 191 UI          INPUT UNITGRAPH,  24 ORDINATES,  VOLUME = 1.00
                        .0      36.2     111.8     222.4     304.1     362.5     223.9     182.8     149.1     112.2
                      87.7      71.8      51.6      41.7      32.2      26.6      17.7      17.7       9.8       6.9
                       6.9       6.9       6.9       6.9

                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 196 KK     *       K28  *
            *            *
            **************

 197 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

               SUBBASIN RUNOFF DATA

 198 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .35  SUBBASIN AREA

 199 LG          GREEN AND AMPT LOSS RATE
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                    STRTL          .35  STARTING LOSS
                      DTH          .25  MOISTURE DEFICIT
                     PSIF         9.62  WETTING FRONT SUCTION
                    XKSAT          .05  HYDRAULIC CONDUCTIVITY
                    RTIMP        19.23  PERCENT IMPERVIOUS AREA

198 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                       .0     111.0     420.8     709.9     454.8     326.4     215.6     151.9      95.7      66.6
                     43.8      33.4      14.0      14.0      14.0
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
202 KK      *      CK15  *        CNAME     15R
            *            *
            **************

203 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

204 HC          HYDROGRAPH COMBINATION
                    ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
205 KK      *       15R  *        CNAME     15C
            *            *
            **************

206 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

                HYDROGRAPH ROUTING DATA

207 RS          STORAGE ROUTING
                    NSTPS           1  NUMBER OF SUBREACHES
                     ITYP        FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC       -1.00  INITIAL CONDITION
                        X         .00 WORKING R AND D COEFFICIENT

208 RC          NORMAL DEPTH CHANNEL
                      ANL        .070  LEFT OVERBANK N-VALUE
                     ANCH        .050  MAIN CHANNEL N-VALUE
                      ANR        .070  RIGHT OVERBANK N-VALUE
                    RLNTH       1756.  REACH LENGTH
                      SEL       .0109  ENERGY SLOPE
                    ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
210 RY        ELEVATION   1789.40   1785.33   1783.53   1778.29   1779.03   1782.91   1788.61   1794.50
209 RX        DISTANCE        .00    131.70    199.71    290.47    356.95    433.85    514.08    573.11
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.55      4.97      9.48     15.08     21.76     29.51     38.42     48.84     60.73
          OUTFLOW        .00     71.63    401.27   1000.28   1902.91   3146.48   4876.40   7282.76  10198.03  13634.10
        ELEVATION    1778.29   1779.14   1780.00   1780.85   1781.70   1782.56   1783.41   1784.26   1785.12   1785.97

          STORAGE      74.00     88.63    104.62    121.93    140.02    158.41    177.09    196.07    215.35    234.91
          OUTFLOW   17613.63  22159.79  27297.02  33072.91  39728.68  46999.00  54861.09  63301.99  72311.52  81881.55
        ELEVATION    1786.82   1787.67   1788.53   1789.38   1790.23   1791.09   1791.94   1792.79   1793.65   1794.50
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*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    13634. TO    81882.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 211 KK     *     K26    *
            *            *
            **************

 212 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

               SUBBASIN RUNOFF DATA

 213 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .13  SUBBASIN AREA

 214 LG          GREEN AND AMPT LOSS RATE
                      STRTL        .35  STARTING LOSS
                        DTH        .17  MOISTURE DEFICIT
                       PSIF      11.84  WETTING FRONT SUCTION
                      XKSAT        .02  HYDRAULIC CONDUCTIVITY
                      RTIMP        .52  PERCENT IMPERVIOUS AREA

 213 UI          INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                        .0      21.2      84.3     146.5     214.0     136.2     105.7      82.2      58.6      46.6
                      32.6      24.5      18.4      13.9      10.1       8.1       4.0       4.0       4.0       4.0
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 218 KK     *    CK14R   *        CNAME     14R
            *            *
            **************

 219 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

 220 HC          HYDROGRAPH COMBINATION
                      ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 221 KK     *     K31    *
            *            *
            **************

 222 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

               SUBBASIN RUNOFF DATA
```

```
223 BA          SUBBASIN CHARACTERISTICS
                     TAREA          .04  SUBBASIN AREA

224 LG          GREEN AND AMPT LOSS RATE
                     STRTL          .35  STARTING LOSS
                       DTH          .33  MOISTURE DEFICIT
                      PSIF         7.30  WETTING FRONT SUCTION
                     XKSAT          .10  HYDRAULIC CONDUCTIVITY
                     RTIMP        30.00  PERCENT IMPERVIOUS AREA

223 UI          INPUT UNITGRAPH,   8 ORDINATES,  VOLUME =  .99
                       .0      59.2     138.9      68.1      32.0      14.9       6.7       3.3
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
226 KK      *      17R   *        CNAME     17C
            *            *
            **************

227 KO          OUTPUT CONTROL VARIABLES
                     IPRNT            4  PRINT CONTROL
                     IPLOT            0  PLOT CONTROL
                     QSCAL           0.  HYDROGRAPH PLOT SCALE
                     IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                      IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT         .083  TIME INTERVAL IN HOURS

               HYDROGRAPH ROUTING DATA

228 RS          STORAGE ROUTING
                     NSTPS            2  NUMBER OF SUBREACHES
                      ITYP         FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC        -1.00  INITIAL CONDITION
                         X          .00 WORKING R AND D COEFFICIENT

229 RC          NORMAL DEPTH CHANNEL
                       ANL         .070  LEFT OVERBANK N-VALUE
                      ANCH         .050  MAIN CHANNEL N-VALUE
                       ANR         .070  RIGHT OVERBANK N-VALUE
                     RLNTH        3499.  REACH LENGTH
                       SEL        .0617  ENERGY SLOPE
                     ELMAX           .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                         CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
231 RY        ELEVATION   2150.00   2129.80   2121.61   2103.15   2103.16   2115.70   2133.27   2144.81
230 RX        DISTANCE        .00     86.05    119.05    168.05    198.20    238.20    314.20    373.20
                                                          ***

                                         COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      7.38     17.63     30.73     46.68     65.49     87.38    112.68    141.47    174.27
          OUTFLOW        .00   1088.93   3830.97   8329.49  14801.76  23473.23  35682.03  50630.68  69571.93  92868.88
        ELEVATION    2103.15   2105.62   2108.08   2110.55   2113.01   2115.48   2117.94   2120.41   2122.88   2125.34

          STORAGE     211.15    252.11    297.22    346.65    400.64    459.21    522.36    590.08    660.87    733.74
          OUTFLOW  119741.20 150396.20 185028.40 223690.90 266779.20 314558.30 367234.30 425378.50 491903.50 563633.30
        ELEVATION    2127.81   2130.27   2132.74   2135.21   2137.67   2140.14   2142.60   2145.07   2147.53   2150.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO   563633.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
232 KK      *      K30   *
            *            *
            **************

233 KO          OUTPUT CONTROL VARIABLES
                     IPRNT            4  PRINT CONTROL
                     IPLOT            0  PLOT CONTROL
                     QSCAL           0.  HYDROGRAPH PLOT SCALE
                     IPNCH            1  PUNCH COMPUTED HYDROGRAPH
                      IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT         .083  TIME INTERVAL IN HOURS
```

```
                SUBBASIN RUNOFF DATA

234 BA            SUBBASIN CHARACTERISTICS
                       TAREA          .28  SUBBASIN AREA

235 LG            GREEN AND AMPT LOSS RATE
                       STRTL          .35  STARTING LOSS
                         DTH          .33  MOISTURE DEFICIT
                        PSIF         7.30  WETTING FRONT SUCTION
                       XKSAT          .10  HYDRAULIC CONDUCTIVITY
                       RTIMP        30.00  PERCENT IMPERVIOUS AREA

234 UI            INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                        .0      93.7     350.8     575.8     358.4     256.4     166.3     117.0      72.3      50.4
                      32.0      22.7      11.4      11.4      11.4

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
238 KK      *      CK16  *        CNAME     16R
            *            *
            **************

239 KO            OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS


240 HC            HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
241 KK      *       16R  *        CNAME     16C
            *            *
            **************

242 KO            OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS


                HYDROGRAPH ROUTING DATA

243 RS            STORAGE ROUTING
                       NSTPS           2  NUMBER OF SUBREACHES
                        ITYP        FLOW  TYPE OF INITIAL CONDITION
                      RSVRIC       -1.00  INITIAL CONDITION
                           X         .00 WORKING R AND D COEFFICIENT

244 RC            NORMAL DEPTH CHANNEL
                         ANL        .070  LEFT OVERBANK N-VALUE
                        ANCH        .050  MAIN CHANNEL N-VALUE
                         ANR        .070  RIGHT OVERBANK N-VALUE
                       RLNTH       6151.  REACH LENGTH
                         SEL       .0381  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
246 RY        ELEVATION   1921.10   1910.00   1905.20   1899.07   1903.45   1908.85   1912.74   1932.42
245 RX        DISTANCE        .00     32.30     43.61     60.76     87.20    197.15    384.48    729.13

                                                                  ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE         .00      1.92      7.69     18.09     37.78     67.37    107.96    168.62    251.19    346.79
```

```
          OUTFLOW        .00     71.19    452.05   1228.57   3006.48   6304.68  12054.96  21167.78  33728.62  50297.46
        ELEVATION    1899.07   1900.83   1902.58   1904.34   1906.09   1907.85   1909.60   1911.36   1913.11   1914.87

          STORAGE     451.27    564.63    686.89    817.90    956.72   1103.16   1257.22   1418.90   1588.19   1765.11
          OUTFLOW   70455.03  94222.19 121665.50 153050.20 188494.00 227843.90 271172.80 318559.00 370083.90 425831.80
        ELEVATION    1916.62   1918.38   1920.13   1921.89   1923.64   1925.40   1927.15   1928.91   1930.66   1932.42


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    12055. TO   425832.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 247 KK     *       K29  *
            *            *
            **************

 248 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 249 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .23  SUBBASIN AREA

 250 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .29  MOISTURE DEFICIT
                       PSIF        8.26  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP       25.25  PERCENT IMPERVIOUS AREA

 249 UI          INPUT UNITGRAPH,  29 ORDINATES,  VOLUME = 1.00
                        .0      24.6      53.1     120.2     170.1     220.4     253.4     159.1     134.3     114.2
                      95.4      74.9      60.7      53.7      41.6      31.4      27.4      22.1      18.9      13.8
                      12.0      12.0       5.9       4.7       4.7       4.7       4.7       4.7       4.7
                                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 254 KK     *     CK14L  *        CNAME     14R
            *            *
            **************

 255 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 256 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 257 KK     *      CK14  *        CNAME     14R
            *            *
            **************

 258 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
```

```
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

259 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
260 KK      *       14R  *        CNAME     14C
            *            *
            **************

261 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

262 RS          STORAGE ROUTING
                    NSTPS          2  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

263 RC          NORMAL DEPTH CHANNEL
                      ANL       .070  LEFT OVERBANK N-VALUE
                     ANCH       .050  MAIN CHANNEL N-VALUE
                      ANR       .070  RIGHT OVERBANK N-VALUE
                    RLNTH      5620.  REACH LENGTH
                      SEL      .0121  ENERGY SLOPE
                    ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
265 RY        ELEVATION   1757.70   1752.06   1748.43   1747.34   1748.51   1755.83   1763.79   1764.99
264 RX        DISTANCE        .00    143.28    226.72    272.03    378.60    505.00    618.60    709.22
                                                          ***
                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      7.38     26.58     50.56     79.03    111.97    149.51    191.81    238.85    290.64
          OUTFLOW        .00    112.51    752.48   1933.16   3629.95   5863.95   8657.98  12057.59  16100.41  20823.41
        ELEVATION    1747.34   1748.27   1749.20   1750.13   1751.06   1751.98   1752.91   1753.84   1754.77   1755.70

          STORAGE     347.07    407.91    472.15    538.02    605.47    674.52    745.15    817.37    891.47    972.27
          OUTFLOW   26868.93  33789.59  41897.87  50870.75  60626.36  71155.30  82450.51  94506.79 107096.80 120258.70
        ELEVATION    1756.63   1757.56   1758.49   1759.42   1760.35   1761.27   1762.20   1763.13   1764.06   1764.99

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    60626. TO   120259.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
266 KK      *        K25 *
            *            *
            **************

267 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA
```

```
268 BA          SUBBASIN CHARACTERISTICS
                      TAREA          .42  SUBBASIN AREA

269 LG          GREEN AND AMPT LOSS RATE
                      STRTL          .35  STARTING LOSS
                        DTH          .23  MOISTURE DEFICIT
                       PSIF        10.02  WETTING FRONT SUCTION
                      XKSAT          .04  HYDRAULIC CONDUCTIVITY
                      RTIMP          .00  PERCENT IMPERVIOUS AREA

268 UI          INPUT UNITGRAPH,  29 ORDINATES,  VOLUME = 1.00
                        .0      36.1      49.2     128.0     200.9     265.0     316.4     342.0     341.2     313.2
                     255.3     203.6     164.6     131.6     104.8      83.3      67.2      55.3      40.2      35.8
                      24.7      24.7      16.0       8.8       8.8       8.8       8.8       8.8       8.8
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
273 KK      *     CK13R  *        CNAME     13R
            *            *
            **************

274 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

275 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
276 KK      *       K33  *
            *            *
            **************

277 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

               SUBBASIN RUNOFF DATA

278 BA          SUBBASIN CHARACTERISTICS
                      TAREA          .10  SUBBASIN AREA

279 LG          GREEN AND AMPT LOSS RATE
                      STRTL          .35  STARTING LOSS
                        DTH          .20  MOISTURE DEFICIT
                       PSIF        10.69  WETTING FRONT SUCTION
                      XKSAT          .03  HYDRAULIC CONDUCTIVITY
                      RTIMP        12.31  PERCENT IMPERVIOUS AREA

278 UI          INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                        .0      15.8      62.6     108.7     158.2     100.3      77.9      60.5      43.0      34.3
                     23.8      18.0      13.4      10.1       7.5       5.8       2.9       2.9       2.9       2.9
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
283 KK      *       K34  *
            *            *
            **************
```

```
284 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

285 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .22  SUBBASIN AREA

286 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .27  MOISTURE DEFICIT
                       PSIF        8.95  WETTING FRONT SUCTION
                      XKSAT         .06  HYDRAULIC CONDUCTIVITY
                      RTIMP       14.42  PERCENT IMPERVIOUS AREA

285 UI          INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                        .0      66.0     250.9     440.8     303.4     215.6     149.2     104.3      67.3      47.7
                     32.3       22.4      13.4       8.8       8.8       8.8
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
289 KK      *      CK18  *        CNAME     18R
            *            *
            **************

290 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

291 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
292 KK      *       18R  *        CNAME     18C
            *            *
            **************

293 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

294 RS          STORAGE ROUTING
                     NSTPS           2  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

295 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       4072.  REACH LENGTH
                       SEL       .0127  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION
```

```
                                    CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
297 RY        ELEVATION   1742.00   1742.07   1741.69   1738.41   1741.17   1744.18   1747.55   1750.98
296 RX        DISTANCE        .00    140.94    230.23    305.36    384.39    532.87    668.87    829.87

                                                  ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.05      4.22      9.49     16.87     26.66     47.58     76.05    106.54    139.03
          OUTFLOW        .00     18.11    115.00    339.06    730.20   1294.76   2296.87   3942.33   6154.09   9036.41
        ELEVATION    1738.41   1739.07   1739.73   1740.39   1741.06   1741.72   1742.38   1743.04   1743.70   1744.36

          STORAGE     173.27    209.17    246.71    285.90    326.75    369.43    414.04    460.56    509.00    559.36
          OUTFLOW   12786.76  17093.31  21952.65  27363.26  33322.40  39826.35  46896.60  54540.05  62764.04  71576.73
        ELEVATION    1745.03   1745.69   1746.35   1747.01   1747.67   1748.33   1749.00   1749.66   1750.32   1750.98

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    27363. TO    71577.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
298 KK    *       K32  *
          *            *
          **************

299 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

300 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .21  SUBBASIN AREA

301 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .24  MOISTURE DEFICIT
                       PSIF        9.88  WETTING FRONT SUCTION
                      XKSAT         .04  HYDRAULIC CONDUCTIVITY
                      RTIMP         .35  PERCENT IMPERVIOUS AREA

300 UI          INPUT UNITGRAPH,  25 ORDINATES,  VOLUME = 1.00
                         .0      26.7      78.3     159.0     215.9     278.5     171.8     140.2     115.1      90.8
                       67.3      58.3      41.7      32.6      27.3      20.4      15.6      13.1      11.4       5.1
                        5.1       5.1       5.1       5.1       5.1

                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
305 KK    *     CK13L  *        CNAME     13R
          *            *
          **************

306 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

307 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

```
              **************
              *            *
 308 KK       *      CK13  *        CNAME     13R
              *            *
              **************

 309 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS


 310 HC          HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
 311 KK       *       13R  *        CNAME     13C
              *            *
              **************

 312 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS


            HYDROGRAPH ROUTING DATA

 313 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 314 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2593.  REACH LENGTH
                        SEL       .0071  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 316 RY        ELEVATION   1707.90   1703.92   1701.03   1697.00   1696.95   1705.40   1713.82   1714.96
 315 RX        DISTANCE        .00    238.17    396.39    499.25    649.86    779.91    896.53   1012.06
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      9.30     21.01     34.90     50.99     69.64     91.97    118.05    147.94    181.84
          OUTFLOW        .00    346.41   1189.09   2494.70   4284.34   6770.23   9928.89  13749.40  18281.47  23635.02
        ELEVATION    1696.95   1697.90   1698.85   1699.79   1700.74   1701.69   1702.64   1703.59   1704.53   1705.48

          STORAGE     219.71    261.52    306.96    353.62    401.03    449.17    498.06    547.68    598.15    652.54
          OUTFLOW   30344.70  37978.83  46811.55  56900.25  67930.43  79876.27  92717.66 106438.50 120833.40 135807.60
        ELEVATION    1706.43   1707.38   1708.32   1709.27   1710.22   1711.17   1712.12   1713.06   1714.01   1714.96


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
 317 KK       *        K19 *
              *            *
              **************

 318 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
```

```
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

319 BA          SUBBASIN CHARACTERISTICS
                    TAREA        .11  SUBBASIN AREA

320 LG          GREEN AND AMPT LOSS RATE
                    STRTL        .35  STARTING LOSS
                      DTH        .25  MOISTURE DEFICIT
                     PSIF       9.77  WETTING FRONT SUCTION
                    XKSAT        .05  HYDRAULIC CONDUCTIVITY
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

319 UI          INPUT UNITGRAPH,  28 ORDINATES,  VOLUME = 1.00
                      .0      12.4      29.5      64.2      89.1     122.2     110.9      75.0      63.3      53.2
                    43.0      32.9      28.4      22.9      17.1      14.3      11.8       9.5       7.2       6.1
                     6.1       2.8       2.4       2.4       2.4       2.4       2.4       2.4
                                                                   ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
324 KK        *     CK12R  *        CNAME     12R
              *            *
              **************

325 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

326 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                   ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
327 KK        *       K24  *
              *            *
              **************

328 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

329 BA          SUBBASIN CHARACTERISTICS
                    TAREA        .32  SUBBASIN AREA

330 LG          GREEN AND AMPT LOSS RATE
                    STRTL        .35  STARTING LOSS
                      DTH        .34  MOISTURE DEFICIT
                     PSIF       7.07  WETTING FRONT SUCTION
                    XKSAT        .11  HYDRAULIC CONDUCTIVITY
                    RTIMP      26.88  PERCENT IMPERVIOUS AREA

329 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                      .0     104.4     394.1     659.2     418.5     300.2     196.6     138.4      86.8      60.5
                    39.3      29.3      13.1      13.1      13.1
                                                                   ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
333 KK        *       K23  *
              *            *
              **************

334 KO            OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS


                 SUBBASIN RUNOFF DATA

335 BA            SUBBASIN CHARACTERISTICS
                       TAREA         .08  SUBBASIN AREA

336 LG            GREEN AND AMPT LOSS RATE
                       STRTL         .35  STARTING LOSS
                         DTH         .33  MOISTURE DEFICIT
                        PSIF        7.30  WETTING FRONT SUCTION
                       XKSAT         .10  HYDRAULIC CONDUCTIVITY
                       RTIMP       30.00  PERCENT IMPERVIOUS AREA

335 UI            INPUT UNITGRAPH,  11 ORDINATES,  VOLUME = 1.00
                        .0      62.0     214.8     146.9      86.3      48.9      26.4      14.9       7.9       4.7
                       4.7
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
339 KK        *      CK21  *        CNAME     21R
              *            *
              **************

340 KO            OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS


341 HC            HYDROGRAPH COMBINATION
                       ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
342 KK        *       21R  *        CNAME     21C
              *            *
              **************

343 KO            OUTPUT CONTROL VARIABLES
                       IPRNT           4  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT        .083  TIME INTERVAL IN HOURS


                 HYDROGRAPH ROUTING DATA

344 RS            STORAGE ROUTING
                      NSTPS           3  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

345 RC            NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
```

```
                    ANCH        .050  MAIN CHANNEL N-VALUE
                     ANR        .070  RIGHT OVERBANK N-VALUE
                   RLNTH       8569.  REACH LENGTH
                     SEL       .0216  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                 CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
347 RY      ELEVATION   1870.50   1864.00   1860.04   1857.37   1850.30   1856.07   1869.46   1906.45
346 RX      DISTANCE        .00    158.07    256.10    307.50    425.11    526.75    641.28    764.28

                                                  ***

                                 COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

         STORAGE        .00     29.42    117.67    257.08    446.25    692.19    994.75   1352.02   1730.64   2114.96
         OUTFLOW        .00    848.79   5431.29  16335.98  36016.21  64951.12 103293.30 152648.40 214767.00 286627.60
       ELEVATION    1850.30   1853.26   1856.21   1859.17   1862.12   1865.08   1868.03   1870.99   1873.94   1876.90

         STORAGE    2505.00   2900.75   3302.21   3709.38   4122.27   4540.87   4965.18   5395.21   5830.95   6272.40
         OUTFLOW  367688.20 457562.40 555958.30 662647.30 777445.50 900202.901030795.001169118.001315084.001468620.00
       ELEVATION    1879.85   1882.81   1885.76   1888.72   1891.67   1894.63   1897.58   1900.54   1903.49   1906.45


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    16336. TO  1468620.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
348 KK    *       K22  *
          *            *
          **************

349 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

350 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .63  SUBBASIN AREA

351 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .30  MOISTURE DEFICIT
                       PSIF        8.12  WETTING FRONT SUCTION
                      XKSAT         .08  HYDRAULIC CONDUCTIVITY
                      RTIMP       18.23  PERCENT IMPERVIOUS AREA

350 UI          INPUT UNITGRAPH,  34 ORDINATES,  VOLUME = 1.00
                         .0      58.8      97.3     228.2     361.5     441.7     579.3     585.0     382.9     329.9
                      287.3     247.8     209.1     166.8     141.9     128.3     102.4      80.0      70.0      64.4
                       45.6      45.1      31.7      28.8      28.8      21.0      11.3      11.3      11.3      11.3
                       11.3      11.3      11.3      11.3

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
356 KK    *      CK20  *          CNAME     20R
          *            *
          **************

357 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

358 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
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                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
359 KK      *      20R   *        CNAME     20C
            *            *
            **************

360 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

361 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

362 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1189.  REACH LENGTH
                        SEL       .0127  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
364 RY        ELEVATION   1722.00   1720.14   1719.86   1718.88   1719.90   1719.74   1719.34   1724.65
363 RX        DISTANCE        .00     98.99    153.70    176.70    216.70    316.43    441.24    515.26

                                                                    ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .08       .41      1.63      4.12      7.10     10.26     13.59     17.08     20.74
          OUTFLOW        .00      2.76     19.04     71.70    260.99    606.78   1073.37   1652.14   2339.05   3132.02
        ELEVATION    1718.88   1719.18   1719.49   1719.79   1720.09   1720.70   1720.70   1721.01   1721.31   1721.61

          STORAGE      24.58     28.55     32.55     36.59     40.67     44.78     48.93     53.11     57.33     61.58
          OUTFLOW    4030.05   5062.19   6207.63   7451.67   8791.32  10224.11  11747.91  13360.93  15061.59  16848.65
        ELEVATION    1721.92   1722.22   1722.52   1722.83   1723.13   1723.44   1723.74   1724.04   1724.35   1724.65

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     6208. TO    16849.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
365 KK      *       K21   *
            *            *
            **************

366 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

367 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .13  SUBBASIN AREA

368 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .33  MOISTURE DEFICIT
                       PSIF        7.36  WETTING FRONT SUCTION
                      XKSAT         .10  HYDRAULIC CONDUCTIVITY
                      RTIMP         .17  PERCENT IMPERVIOUS AREA
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367 UI          INPUT UNITGRAPH,  22 ORDINATES,  VOLUME = 1.00
                     .0      18.8      63.8     123.2     174.7     164.9     108.3      88.1      69.0      50.4
                   41.8      29.9      22.7      18.2      14.4       9.4       9.2       5.1       3.6       3.6
                    3.6       3.6
                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
372 KK      *      CK19  *        CNAME     19R
            *            *
            **************

373 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

374 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
375 KK      *       19R  *        CNAME     19C
            *            *
            **************

376 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

377 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

378 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2871.  REACH LENGTH
                        SEL       .0106  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
380 RY        ELEVATION   1710.80   1706.21   1704.90   1699.10   1699.74   1707.72   1707.80   1707.80
379 RX        DISTANCE        .00    223.89    292.04    376.47    438.47    492.47    574.47    678.92
                                                                    ***
                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.39      4.53      8.21     12.41     17.15     22.43     28.23     34.57     41.44
          OUTFLOW        .00     29.56    184.53    450.35    824.66   1311.29   1915.81   2644.51   3503.93   4500.69
        ELEVATION    1699.10   1699.72   1700.33   1700.95   1701.56   1702.18   1702.80   1703.41   1704.03   1704.64

          STORAGE      49.01     57.96     68.37     80.19     93.39    114.72    138.01    162.53    188.26    215.21
          OUTFLOW    5737.83   7213.30   8886.35  10776.38  12899.85  15600.61  18795.30  22434.88  26507.32  31009.74
        ELEVATION    1705.26   1705.87   1706.49   1707.11   1707.72   1708.34   1708.95   1709.57   1710.19   1710.80

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     4501. TO     31010.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 381 KK   *       K20  *
          *            *
          **************

 382 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

 383 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .18  SUBBASIN AREA

 384 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .18  MOISTURE DEFICIT
                       PSIF       11.39  WETTING FRONT SUCTION
                      XKSAT         .02  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 383 UI          INPUT UNITGRAPH,  27 ORDINATES,  VOLUME = 1.00
                        .0      21.7      53.8     115.6     159.0     226.1     176.8     127.8     107.8      89.8
                      71.4      54.8      47.8      37.2      27.7      23.8      18.2      16.3      10.6      10.6
                       8.3       4.2       4.2       4.2       4.2       4.2       4.2
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 388 KK   *     CK12L  *        CNAME     12R
          *            *
          **************

 389 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 390 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 391 KK   *      CK12  *        CNAME     12R
          *            *
          **************

 392 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 393 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                          ***
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
394 KK      *       12R  *        CNAME     12C
            *            *
            **************

395 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


                HYDROGRAPH ROUTING DATA

396 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

397 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       4131.  REACH LENGTH
                        SEL       .0057  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                           --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
399 RY        ELEVATION   1950.90   1920.02   1906.06   1889.62   1874.16   1881.93   1893.97   1910.23
398 RX        DISTANCE        .00     87.00    126.00    175.00    253.00    311.00    379.00    457.64

                                                   ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      9.68     38.69     85.45    148.70    226.39    316.68    419.07    533.54    659.92
          OUTFLOW        .00    363.59   2340.92   7132.98  14901.74  26328.66  41261.43  59831.21  82555.93 112264.60
        ELEVATION    1874.16   1878.20   1882.24   1886.28   1890.32   1894.35   1898.39   1902.43   1906.47   1910.51

          STORAGE     793.85    932.11   1074.70   1221.64   1372.94   1528.60   1688.62   1852.99   2021.72   2194.81
          OUTFLOW  148120.80 188367.50 232926.10 281744.60 334787.90 392032.00 453463.30 519075.50 588868.90 662848.30
        ELEVATION    1914.55   1918.59   1922.63   1926.67   1930.71   1934.74   1938.78   1942.82   1946.86   1950.90


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    14902. TO   662848.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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            *            *
400 KK      *       K15  *
            *            *
            **************

401 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


                SUBBASIN RUNOFF DATA

402 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .23  SUBBASIN AREA

403 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .24  MOISTURE DEFICIT
                       PSIF        9.81  WETTING FRONT SUCTION
                      XKSAT         .04  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

402 UI          INPUT UNITGRAPH,  27 ORDINATES,  VOLUME = 1.00
```

```
                .0      21.7      34.8      84.7     132.0     170.9     197.8     207.8     196.8     166.0
            131.1     103.0      81.8      63.4      49.6      39.4      32.2      23.0      18.8      14.8
             14.2       5.3       5.3       5.3       5.3       5.3       5.3
                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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          *            *
407 KK    *       K17  *
          *            *
          **************

408 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

409 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .16  SUBBASIN AREA

410 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .17  MOISTURE DEFICIT
                      PSIF       11.68  WETTING FRONT SUCTION
                     XKSAT         .02  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

409 UI          INPUT UNITGRAPH,  29 ORDINATES,  VOLUME = 1.00
                      .0      13.7      19.0      49.0      76.7     101.1     120.2     130.1     129.1     117.8
                    95.4      76.2      61.2      49.0      39.4      30.5      25.0      21.0      14.5      13.0
                     9.4       9.4       5.3       3.3       3.3       3.3       3.3       3.3       3.3
                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
414 KK    *       K18  *
          *            *
          **************

415 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

416 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .13  SUBBASIN AREA

417 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .18  MOISTURE DEFICIT
                      PSIF       11.56  WETTING FRONT SUCTION
                     XKSAT         .02  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

416 UI          INPUT UNITGRAPH,  22 ORDINATES,  VOLUME = 1.00
                      .0      14.9      36.3      78.7     114.4     137.0     140.3     122.3      91.9      67.9
                    50.5      36.9      27.5      20.5      15.4      10.2       9.5       3.6       3.6       3.6
                     3.6       3.6
                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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421 KK      *      CK23  *        CNAME     23R
            *            *
            **************

422 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


423 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
424 KK      *       23R  *        CNAME     23C
            *            *
            **************

425 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

426 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

427 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       4551.  REACH LENGTH
                        SEL       .0091  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
429 RY        ELEVATION   1711.90   1708.89   1707.98   1708.00   1707.88   1709.00   1710.01   1711.14
428 RX        DISTANCE        .00    188.22    282.03    356.92    455.00    557.65    631.98    724.74

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      2.63      7.59     13.46     20.24     27.93     36.37     45.46     55.18     65.53
          OUTFLOW        .00     17.85     92.26    215.04    385.47    605.58    899.15   1254.74   1664.57   2129.22
        ELEVATION    1707.88   1708.09   1708.30   1708.51   1708.73   1708.94   1709.15   1709.36   1709.57   1709.78

          STORAGE      76.53     88.17    100.50    113.49    127.17    141.52    156.48    171.77    187.34    203.21
          OUTFLOW    2649.40   3225.40   3859.12   4551.78   5304.58   6118.73   7010.18   7974.38   9000.26  10087.30
        ELEVATION    1710.00   1710.21   1710.42   1710.63   1710.84   1711.05   1711.26   1711.48   1711.69   1711.90


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


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            *            *
430 KK      *        K16 *
            *            *
            **************

431 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
```

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                    TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

432 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .22  SUBBASIN AREA

433 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .21  MOISTURE DEFICIT
                       PSIF       10.36  WETTING FRONT SUCTION
                      XKSAT         .03  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

432 UI          INPUT UNITGRAPH,  28 ORDINATES,  VOLUME = 1.00
                        .0      20.3      31.2      77.3     120.1     157.3     183.2     194.8     187.7     161.6
                     129.0     101.7      80.7      63.7      50.0      39.8      32.1      23.9      20.5      13.9
                      13.9       8.2       4.9       4.9       4.9       4.9       4.9       4.9
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
437 KK      *      CK22  *        CNAME     22R
            *            *
            **************

438 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

439 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
440 KK      *       22R  *        CNAME     22C
            *            *
            **************

441 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

442 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

443 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       3227.  REACH LENGTH
                        SEL       .0078  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
445 RY        ELEVATION   1950.90   1920.02   1906.06   1889.62   1874.16   1881.93   1893.97   1910.23
444 RX        DISTANCE        .00     87.00    126.00    175.00    253.00    311.00    379.00    457.64
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA
```

```
          STORAGE        .00      7.56     30.23     66.76    116.18    176.88    247.42    327.41    416.85    515.59
          OUTFLOW        .00    425.33   2738.40   8344.12  17431.99  30799.15  48267.43  69990.27  96573.54 131326.60
        ELEVATION    1874.16   1878.20   1882.24   1886.28   1890.32   1894.35   1898.39   1902.43   1906.47   1910.51

          STORAGE     620.23    728.25    839.65    954.46   1072.67   1194.28   1319.30   1447.72   1579.55   1714.79
          OUTFLOW  173271.00 220351.30 272475.80 329583.50 391633.30 458597.20 530459.30 607212.10 688856.10 775396.80
        ELEVATION    1914.55   1918.59   1922.63   1926.67   1930.71   1934.74   1938.78   1942.82   1946.86   1950.90


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     2738. TO   775397.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 446 KK     *      CK3R  *        CNAME      3R
            *            *
            **************

 447 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 448 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 449 KK     *       CK3  *        CNAME      3R
            *            *
            **************

 450 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 451 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 452 KK     *        3R  *        CNAME      3C
            *            *
            **************

 453 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 454 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
```

```
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

455 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH        111.  REACH LENGTH
                       SEL       .0156  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
457 RY        ELEVATION   1671.20   1669.03   1668.46   1667.98   1668.53   1668.14   1672.63   1673.18
456 RX        DISTANCE        .00    145.34    201.25    239.32    284.05    342.36    405.01    501.05

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .02       .09       .21       .35       .51       .68       .87      1.07      1.29
          OUTFLOW        .00      6.16     52.81    186.50    391.60    667.58   1011.85   1424.83   1907.55   2461.43
        ELEVATION    1667.98   1668.25   1668.53   1668.80   1669.07   1669.35   1669.62   1669.90   1670.17   1670.44

          STORAGE       1.52      1.77      2.04      2.31      2.58      2.86      3.14      3.42      3.72      4.05
          OUTFLOW    3088.05   3789.16   4580.97   5496.72   6487.35   7550.84   8685.53   9887.22  10981.58  12260.51
        ELEVATION    1670.72   1670.99   1671.26   1671.54   1671.81   1672.09   1672.36   1672.63   1672.91   1673.18

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO    12261.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
458 KK    *       K35  *
          *            *
          **************

459 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

460 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .30  SUBBASIN AREA

461 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .16  MOISTURE DEFICIT
                      PSIF       12.00  WETTING FRONT SUCTION
                     XKSAT         .02  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

460 UI          INPUT UNITGRAPH,  41 ORDINATES,  VOLUME = 1.00
                        .0      18.3      18.3      33.4      62.9      90.4     114.9     136.7     156.9     167.4
                     175.2     174.1     165.9     150.1     129.0     108.7      93.7      80.8      68.5      58.7
                      50.9      41.5      35.8      31.7      28.0      21.5      19.4      17.0      12.5      12.5
                      12.5       7.6       4.4       4.4       4.4       4.4       4.4       4.4       4.4       4.4
                       4.4

                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
467 KK    *        K2  *
          *            *
          **************

468 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
```

```
                    TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

469 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .00  SUBBASIN AREA

470 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .36  MOISTURE DEFICIT
                       PSIF        6.80  WETTING FRONT SUCTION
                      XKSAT         .13  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

469 UI          INPUT UNITGRAPH,   2 ORDINATES,  VOLUME = 1.05
                       .0       7.3

                                                        ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
472 KK      *       CK2  *        CNAME      2R
            *            *
            **************

473 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

474 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                        ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
475 KK      *        2R  *        CNAME      2C
            *            *
            **************

476 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

477 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

478 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1038.  REACH LENGTH
                        SEL       .0052  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
480 RY        ELEVATION   1660.00   1653.35   1652.00   1650.94   1651.55   1653.00   1654.01   1659.84
479 RX        DISTANCE        .00     74.00    166.00    221.08    280.08    500.10    783.07    994.37

                                                        ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .40      1.69      4.09      7.68     12.63     19.28     27.31     35.72     44.38
```

```
          OUTFLOW        .00     13.96     88.18    285.38    643.81   1280.10   2228.18   3496.43   5072.46   6917.96
       ELEVATION    1650.94   1651.42   1651.89   1652.37   1652.85   1653.32   1653.80   1654.28   1654.75   1655.23

         STORAGE      53.31     62.49     71.92     81.62     91.56    101.77    112.23    122.95    133.93    145.15
          OUTFLOW    9020.10  11370.54  13963.66  16795.54  19863.51  23165.78  26701.22  30469.25  34469.67  38785.67
       ELEVATION    1655.71   1656.18   1656.66   1657.14   1657.62   1658.09   1658.57   1659.05   1659.52   1660.00


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    13964. TO    38786.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
481 KK     *        K1  *
           *            *
           **************

482 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

483 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .08  SUBBASIN AREA

484 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .36  MOISTURE DEFICIT
                       PSIF        6.80  WETTING FRONT SUCTION
                      XKSAT         .13  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

483 UI          INPUT UNITGRAPH,  10 ORDINATES,  VOLUME = 1.00
                        .0      41.4     149.9     186.3     112.1      56.5      28.8      15.1       5.0       5.0
                                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
487 KK     *       CK1  *         CNAME      1R
           *            *
           **************

488 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


489 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
490 KK     *        1R  *         CNAME      1C
           *            *
           **************

491 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
```

ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	200	LAST ORDINATE PUNCHED OR SAVED
TIMINT	.083	TIME INTERVAL IN HOURS

HYDROGRAPH ROUTING DATA

492 RN NO ROUTING

***

1

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 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	K13	171.	4.33	23.	8.	8.	.08		
+	HYDROGRAPH AT	K14	604.	4.33	82.	30.	30.	.30		
+	2 COMBINED AT	CK24	773.	4.33	105.	38.	38.	.38		
+	ROUTED TO	24R	612.	4.58	104.	38.	38.	.38		
+	HYDROGRAPH AT	K9	236.	4.17	19.	7.	7.	.08		
+	ROUTED TO	9R	152.	4.25	19.	7.	7.	.08		
+	HYDROGRAPH AT	K8	124.	4.17	11.	4.	4.	.04		
+	2 COMBINED AT	CK8	251.	4.17	30.	11.	11.	.12		
+	ROUTED TO	8R	233.	4.33	30.	11.	11.	.12		
+	HYDROGRAPH AT	K11	695.	4.25	78.	28.	28.	.31		
+	HYDROGRAPH AT	K12	339.	4.17	31.	11.	11.	.12		
+	2 COMBINED AT	CK11	1013.	4.17	109.	39.	39.	.43		
+	ROUTED TO	11R	818.	4.42	109.	39.	39.	.43		
+	HYDROGRAPH AT	K10	759.	4.33	100.	36.	36.	.42		
+	2 COMBINED AT	CK10	1378.	4.33	202.	73.	73.	.85		
+	ROUTED TO	10R	1165.	4.50	201.	73.	73.	.85		
+	HYDROGRAPH AT	K7	123.	4.17	10.	4.	4.	.07		
+	3 COMBINED AT	CK7	1335.	4.50	237.	87.	87.	1.04		
+	ROUTED TO	7R	1311.	4.58	237.	87.	87.	1.04		
+	HYDROGRAPH AT	K6	208.	4.17	18.	7.	7.	.08		
+	2 COMBINED AT	CK6	1350.	4.58	254.	93.	93.	1.12		
+	ROUTED TO	6R	1309.	4.67	254.	93.	93.	1.12		
+	HYDROGRAPH AT	K5	131.	4.17	11.	4.	4.	.05		
+	2 COMBINED AT	CK5	1320.	4.67	263.	96.	96.	1.17		
+	ROUTED TO	5R	1224.	4.83	263.	96.	96.	1.17		
	HYDROGRAPH AT									

+		K4	585.	4.33	68.	25.	25.	.30
+	3 COMBINED AT	CK4	1815.	4.75	421.	154.	154.	1.86
+	ROUTED TO	4R	1762.	4.83	421.	154.	154.	1.86
+	HYDROGRAPH AT	K3	157.	4.25	13.	5.	5.	.07
+	2 COMBINED AT	CK3L	1769.	4.83	432.	157.	157.	1.93
+	HYDROGRAPH AT	K27	550.	4.25	70.	25.	25.	.27
+	HYDROGRAPH AT	K28	899.	4.17	89.	32.	32.	.35
+	2 COMBINED AT	CK15	1333.	4.25	159.	57.	57.	.62
+	ROUTED TO	15R	1234.	4.25	158.	57.	57.	.62
+	HYDROGRAPH AT	K26	303.	4.25	36.	13.	13.	.13
+	2 COMBINED AT	CK14R	1463.	4.25	193.	70.	70.	.75
+	HYDROGRAPH AT	K31	136.	4.08	11.	4.	4.	.04
+	ROUTED TO	17R	127.	4.17	11.	4.	4.	.04
+	HYDROGRAPH AT	K30	705.	4.17	70.	25.	25.	.28
+	2 COMBINED AT	CK16	831.	4.17	80.	29.	29.	.32
+	ROUTED TO	16R	699.	4.33	80.	29.	29.	.32
+	HYDROGRAPH AT	K29	394.	4.33	58.	21.	21.	.23
+	2 COMBINED AT	CK14L	1075.	4.33	137.	50.	50.	.54
+	2 COMBINED AT	CK14	2209.	4.33	322.	117.	117.	1.29
+	ROUTED TO	14R	1861.	4.58	320.	117.	117.	1.29
+	HYDROGRAPH AT	K25	664.	4.50	103.	37.	37.	.42
+	2 COMBINED AT	CK13R	2338.	4.58	416.	151.	151.	1.72
+	HYDROGRAPH AT	K33	221.	4.25	26.	9.	9.	.10
+	HYDROGRAPH AT	K34	564.	4.17	56.	20.	20.	.22
+	2 COMBINED AT	CK18	772.	4.17	82.	30.	30.	.32
+	ROUTED TO	18R	610.	4.42	82.	30.	30.	.32
+	HYDROGRAPH AT	K32	401.	4.33	50.	18.	18.	.21
+	2 COMBINED AT	CK13L	965.	4.33	131.	48.	48.	.53
+	2 COMBINED AT	CK13	2930.	4.50	536.	195.	195.	2.24
+	ROUTED TO	13R	2773.	4.67	535.	195.	195.	2.24
+	HYDROGRAPH AT	K19	196.	4.33	26.	9.	9.	.11
+	2 COMBINED AT	CK12R	2861.	4.67	558.	203.	203.	2.35

+	HYDROGRAPH AT	K24	800.	4.17	78.	28.	28.	.32
+	HYDROGRAPH AT	K23	233.	4.17	20.	7.	7.	.08
+	2 COMBINED AT	CK21	1032.	4.17	98.	36.	36.	.40
+	ROUTED TO	21R	654.	4.50	98.	36.	36.	.40
+	HYDROGRAPH AT	K22	940.	4.42	151.	55.	55.	.63
+	2 COMBINED AT	CK20	1425.	4.50	242.	88.	88.	1.03
+	ROUTED TO	20R	1382.	4.58	241.	88.	88.	1.03
+	HYDROGRAPH AT	K21	255.	4.25	28.	10.	10.	.13
+	2 COMBINED AT	CK19	1500.	4.50	266.	97.	97.	1.16
+	ROUTED TO	19R	1460.	4.67	265.	97.	97.	1.16
+	HYDROGRAPH AT	K20	356.	4.33	49.	18.	18.	.18
+	2 COMBINED AT	CK12L	1638.	4.58	311.	113.	113.	1.34
+	2 COMBINED AT	CK12	4094.	4.67	846.	308.	308.	3.69
+	ROUTED TO	12R	3999.	4.75	846.	308.	308.	3.69
+	HYDROGRAPH AT	K15	385.	4.50	56.	20.	20.	.23
+	HYDROGRAPH AT	K17	263.	4.50	43.	15.	15.	.16
+	HYDROGRAPH AT	K18	258.	4.33	34.	12.	12.	.13
+	2 COMBINED AT	CK23	508.	4.42	77.	28.	28.	.29
+	ROUTED TO	23R	344.	4.92	76.	28.	28.	.29
+	HYDROGRAPH AT	K16	373.	4.50	56.	20.	20.	.22
+	2 COMBINED AT	CK22	612.	4.67	132.	48.	48.	.51
+	ROUTED TO	22R	594.	4.75	132.	48.	48.	.51
+	3 COMBINED AT	CK3R	4551.	4.83	1013.	370.	370.	4.44
+	2 COMBINED AT	CK3	5870.	4.83	1397.	510.	510.	6.37
+	ROUTED TO	3R	5873.	4.83	1397.	510.	510.	6.37
+	HYDROGRAPH AT	K35	384.	4.75	83.	30.	30.	.30
+	HYDROGRAPH AT	K2	3.	4.08	0.	0.	0.	.00
+	3 COMBINED AT	CK2	6130.	4.83	1470.	537.	537.	6.67
+	ROUTED TO	2R	6068.	4.92	1470.	537.	537.	6.67
+	HYDROGRAPH AT	K1	220.	4.17	15.	6.	6.	.08
+	2 COMBINED AT	CK1	6068.	4.92	1481.	541.	541.	6.75
+	ROUTED TO	1R	6068.	4.92	1481.	541.	541.	6.75

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

Basin K

100 – Year
24 – Hour
HEC – 1 Output

URS Corporation
New River West Tributaries FDS
FCD 2003 C057

```
1****************************************
*                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
*              JUN  1998               *
*           VERSION 4.1                *
*                                      *
*  RUN DATE   27JAN05  TIME  17:28:38  *
*                                      *
****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*          (916) 756-1104              *
*                                      *
****************************************
```

```
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


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

  1           ID  HEC-1 Analysis using WMS
  2           ID  New River West Tributaries FDS - FCD 2003 C057
  3           ID  Basin K - 100-Year 24-Hour Storm Event
  4           ID  January 2005 (Sub-basin K8; revised flowpath)
              *DIAGRAM
  5           IT       5 28APR04       0     200
  6           IO       4
  7           IN      15 28APR04       0
  8           JD   4.533    0.01
              * 24-hour distribution
  9           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 10           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 11           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 12           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 13           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 14           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 15           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 16           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 17           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 18           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 19           IN      15 28APR04       0
 20           JD   4.307    10.0
              * 24-hour distribution
 21           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 22           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 23           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 24           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 25           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 26           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 27           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 28           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 29           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 30           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0
 31           IN      15 28APR04       0
 32           JD   4.161    20.0
              * 24-hour distribution
 33           PC     0.0   0.002   0.005   0.008   0.011   0.014   0.017    0.02   0.023   0.026
 34           PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056    0.06
 35           PC   0.064   0.068   0.072   0.076    0.08   0.085    0.09   0.095     0.1   0.105
 36           PC    0.11   0.115    0.12   0.126   0.133    0.14   0.147   0.155   0.163   0.172
 37           PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.387   0.663   0.707
 38           PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
 39           PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
 40           PC   0.913   0.918   0.922   0.926    0.93   0.934   0.938   0.942   0.946    0.95
 41           PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977    0.98
 42           PC   0.983   0.986   0.989   0.992   0.995   0.998     1.0

 43           KK     K13
 44           KO       0       0     0.0       1      22
 45           BA   0.083
 46           LG    0.35   0.165  11.955   0.016   1.981
              * S_Graph
 47           UI     0.0   10.82   32.12   64.93   88.32  112.13   68.99   56.43    46.2   36.13
 48           UI   27.08   23.28    16.5   13.05   10.76    8.29    6.03    5.29    4.24    2.07
 49           UI    2.07    2.07    2.07    2.07     0.0
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 50           KK     K14
 51           KO       0       0     0.0       1      22
 52           BA   0.302
 53           LG    0.35   0.182  11.447   0.021   7.481
              * S_Graph
 54           UI     0.0    37.7   103.3   216.8  292.44  406.86  257.56  207.04  171.91  138.94
 55           UI  103.89   87.15   69.31   50.81   42.41   32.57   28.01   18.45   18.45   12.28
 56           UI    7.23    7.23    7.23    7.23    7.23     0.0

 57           KK    CK24   CNAME     24R
 58           KO       0       0     0.0       0      22
 59           HC       2   0.385

 60           KK     24R   CNAME     24C
 61           KO       0       0     0.0       0      22
 62           RS       2    FLOW    -1.0     0.0
 63           RC    0.07    0.05    0.07 3448.29  0.0099     0.0
              * 24R
 64           RX     0.0  108.23  190.07  250.51  338.48  620.93  803.03 1085.49
 65           RY  1704.2 1698.16 1692.52 1690.76  1690.3 1693.02 1695.09 1705.54

 66           KK      K9
 67           KO       0       0     0.0       1      22
 68           BA  0.0819
 69           LG   0.317    0.23   8.825    0.07   5.263
              * S_Graph
 70           UI     0.0   49.87  179.21  170.22   97.49   57.24   33.27   20.36   11.77    5.85
 71           UI     4.4     4.4

 72           KK      9R   CNAME      9C
 73           KO       0       0     0.0       0      22
 74           RS       1    FLOW    -1.0     0.0
 75           RC    0.07    0.05    0.07 2027.09  0.0075     0.0
              * 9R
 76           RX     0.0   27.70   51.81    77.3  158.44  191.92  226.41  260.41
 77           RY  1773.2 1771.73 1770.86 1769.94 1769.97 1770.18 1770.85 1771.51

 78           KK      K8
 79           KO       0       0     0.0       1      22
 80           BA   0.042
 81           LG    0.35   0.194  11.066   0.025     0.0
              * S_Graph
 82           UI     0.0   24.43   87.32   89.03    50.6   30.05   18.01   10.73    6.39    3.54
 83           UI    2.21    2.21     0.0

 84           KK     CK8   CNAME      8R
 85           KO       0       0     0.0       0      22
 86           HC       2   0.124
```



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

 87           KK      8R   CNAME      8C
 88           KO       0       0     0.0       0      22
 89           RS       1    FLOW    -1.0     0.0
 90           RC    0.07    0.05    0.07  934.42  0.0099     0.0
              * 8R
 91           RX     0.0   19.37   38.61   56.43   89.94  122.75  145.24  167.96
 92           RY  1741.7  1741.7 1741.12 1740.46 1740.16 1741.02  1741.1  1741.1

 93           KK     K11
 94           KO       0       0     0.0       1      22
 95           BA  0.3125
 96           LG   0.273   0.199    6.95   0.177  27.238
              * S_Graph
 97           UI     0.0   62.95  241.03  410.23  518.98  312.79  241.95  175.87  127.64    94.1
 98           UI   64.47   48.58   35.25   26.17   17.62   10.25   10.25   10.25   10.25

 99           KK     K12
100           KO       0       0     0.0       1      22
101           BA  0.1197
102           LG    0.25    0.15     7.3    0.17    30.0
              * S_Graph
103           UI     0.0   62.64  223.43  260.98  147.83   90.65   56.84   34.02   20.45   13.44
104           UI    6.01    6.01     0.0

105           KK    CK11   CNAME     11R
106           KO       0       0     0.0       0      22
107           HC       2   0.432

108           KK     11R   CNAME     11C
109           KO       0       0     0.0       0      22
110           RS       2    FLOW    -1.0     0.0
111           RC    0.07    0.05    0.07 6211.11    0.02     0.0
              * 11R
112           RX     0.0    87.0   126.0   175.0   253.0   311.0   379.0  457.64
113           RY  1950.9 1920.02 1906.06 1889.62 1874.16 1881.93 1893.97 1910.23

114           KK     K10
115           KO       0       0     0.0       1      22
116           BA  0.4155
```

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 117          LG   0.275   0.191   7.717   0.132  16.106
              * S_Graph
 118          UI     0.0   50.15  130.53  276.77  376.67  541.16  371.52  285.81  240.08  197.12
 119          UI  151.49  121.51  103.29   75.26   60.56   51.41   38.45   30.95   24.54   24.54
 120          UI   10.85    9.61    9.61    9.61    9.61    9.61     0.0

 121          KK    CK10   CNAME     10R
 122          KO       0       0     0.0       0      22
 123          HC       2   0.848
1                                        HEC-1 INPUT                                          PAGE  4

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


 124          KK     10R   CNAME     10C
 125          KO       0       0     0.0       0      22
 126          RS       1    FLOW    -1.0     0.0
 127          RC    0.07    0.05    0.07 2656.46  0.0105     0.0
              * 10R
 128          RX     0.0  154.06  243.55  295.18   337.6  412.12  503.14  589.15
 129          RY  1773.8 1771.81  1771.0 1770.27 1771.04 1771.09 1772.82 1774.78

 130          KK      K7
 131          KO       0       0     0.0       1      22
 132          BA   0.067
 133          LG    0.35    0.35    4.15   0.432     0.0
              * S_Graph
 134          UI     0.0   16.63   62.86  108.75  103.61   65.96   48.89   33.02    24.7   16.08
 135          UI   11.79    8.24    6.14     3.5    2.41    2.41    2.41     0.0

 136          KK     CK7   CNAME      7R
 137          KO       0       0     0.0       0      22
 138          HC       3   1.039

 139          KK      7R   CNAME      7C
 140          KO       0       0     0.0       0      22
 141          RS       1    FLOW    -1.0     0.0
 142          RC    0.07    0.05    0.07  838.31  0.0143     0.0
              * 7R
 143          RX     0.0  176.15  323.64  433.66  552.88  673.72  781.28  878.91
 144          RY  1741.1 1736.67 1733.09 1735.44 1736.24 1734.46 1739.36 1741.61

 145          KK      K6
 146          KO       0       0     0.0       1      22
 147          BA   0.079
 148          LG    0.35    0.27   8.809   0.058     0.0
              * S_Graph
 149          UI     0.0   30.08  110.43  169.89  101.29   70.88   45.23   29.77   19.54   12.47
 150          UI    8.79    4.15    3.44    3.44     0.0

 151          KK     CK6   CNAME      6R
 152          KO       0       0     0.0       0      22
 153          HC       2   1.118

 154          KK      6R   CNAME      6C
 155          KO       0       0     0.0       0      22
 156          RS       1    FLOW    -1.0     0.0
 157          RC    0.07    0.05    0.07 1894.28  0.0102     0.0
              * 6R
 158          RX     0.0  141.23  211.23  316.23  439.23  562.23  703.51  764.51
 159          RY  1728.8 1726.01 1725.25 1717.71 1719.74 1722.51 1723.78  1723.8

 160          KK      K5
 161          KO       0       0     0.0       1      22
 162          BA  0.0502
 163          LG    0.35   0.321   7.556   0.095     0.0
              * S_Graph
 164          UI     0.0   15.87   61.87   96.75   88.62   53.67   31.08   18.34    9.91    6.06
1                                        HEC-1 INPUT                                          PAGE  5

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

 165          UI    2.57    2.57     0.0

 166          KK     CK5   CNAME      5R
 167          KO       0       0     0.0       0      22
 168          HC       2   1.168

 169          KK      5R   CNAME      5C
 170          KO       0       0     0.0       0      22
 171          RS       2    FLOW    -1.0     0.0
 172          RC    0.07    0.05    0.07 3449.11    0.01     0.0
              * 5R&13R
 173          RX     0.0  108.23  190.07  250.51  338.48  620.93  803.03 1085.49
 174          RY  1704.2 1698.16 1692.52 1690.76  1690.3 1693.02 1695.09 1705.54

 175          KK      K4
 176          KO       0       0     0.0       1      22
 177          BA  0.3030
 178          LG    0.35   0.285   8.509   0.067     0.0
              * S_Graph
 179          UI     0.0   36.95   98.39  209.62  298.16  347.08   342.1  278.13  201.52  148.37
 180          UI  108.07   76.51   59.35   39.78   28.54   25.29   10.45    8.99    8.99    8.99
 181          UI    8.99     0.0
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 182          KK      CK4   CNAME      4R
 183          KO        0       0     0.0       0      22
 184          HC        3   1.856

 185          KK       4R   CNAME      4C
 186          KO        0       0     0.0       0      22
 187          RS        1    FLOW    -1.0     0.0
 188          RC     0.07    0.05    0.07 1629.95  0.0084     0.0
              * 4R
 189          RX      0.0  108.23  190.07  250.51  338.48  620.93  803.03 1085.49
 190          RY   1704.2 1698.16 1692.52 1690.76  1690.3 1693.02 1695.09 1705.54

 191          KK       K3
 192          KO        0       0     0.0       1      22
 193          BA   0.0739
 194          LG     0.35   0.377   5.369   0.225     0.0
              * S_Graph
 195          UI      0.0   15.08    58.1  102.54   120.3   99.64   64.41   41.38    26.2   16.68
 196          UI    10.53    7.01    3.09    3.09    3.09     0.0

 197          KK     CK3L   CNAME      3R
 198          KO        0       0     0.0       0      22
 199          HC        2   1.931

 200          KK      K27
 201          KO        0       0     0.0       1      22
 202          BA    0.271
 203          LG     0.35   0.214  10.308   0.033   8.772
              * S_Graph
 204          UI      0.0   36.15  111.77  222.39  304.12  362.48  223.91  182.83  149.11  112.17
 205          UI    87.74   71.85   51.58   41.68   32.19   26.62   17.69   17.69    9.76    6.93
 206          UI     6.93    6.93    6.93    6.93     0.0
1                                          HEC-1 INPUT                                                    PAGE  6

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


 207          KK      K28
 208          KO        0       0     0.0       1      22
 209          BA   0.3463
 210          LG     0.35   0.252   9.619   0.048  19.233
              * S_Graph
 211          UI      0.0   111.0  420.77  709.93  454.75  326.37  215.61  151.85   95.66   66.63
 212          UI    43.77   33.36   14.04   14.04   14.04     0.0

 213          KK     CK15   CNAME     15R
 214          KO        0       0     0.0       0      22
 215          HC        2   0.617

 216          KK      15R   CNAME     15C
 217          KO        0       0     0.0       0      22
 218          RS        1    FLOW    -1.0     0.0
 219          RC     0.07    0.05    0.07 1756.26  0.0109     0.0
              * 15R
 220          RX      0.0   131.7  199.71  290.47  356.95  433.85  514.08  573.11
 221          RY   1789.4 1785.33 1783.53 1778.29 1779.03 1782.91 1788.61  1794.5

 222          KK      K26
 223          KO        0       0     0.0       1      22
 224          BA    0.132
 225          LG     0.35   0.169  11.843   0.017   0.523
              * S_Graph
 226          UI      0.0   21.23    84.3  146.53  213.98  136.22  105.69    82.2   58.62   46.61
 227          UI    32.63   24.46    18.4   13.91   10.14    8.13    3.97    3.97    3.97    3.97
 228          UI      0.0

 229          KK    CK14R   CNAME     14R
 230          KO        0       0     0.0       0      22
 231          HC        2   0.750

 232          KK      K31
 233          KO        0       0     0.0       1      22
 234          BA    0.042
 235          LG     0.35    0.33     7.3   0.105    30.0
              * S_Graph
 236          UI      0.0   59.19  138.93   68.08   32.03   14.91    6.68    3.27     0.0

 237          KK      17R   CNAME     17C
 238          KO        0       0     0.0       0      22
 239          RS        2    FLOW    -1.0     0.0
 240          RC     0.07    0.05    0.07 3498.69  0.0617     0.0
              * 17R
 241          RX      0.0   86.05  119.05  168.05   198.2   238.2   314.2   373.2
 242          RY   2150.0  2129.8 2121.61 2103.15 2103.16  2115.7 2133.27 2144.81

 243          KK      K30
 244          KO        0       0     0.0       1      22
 245          BA   0.2755
 246          LG     0.35    0.33     7.3   0.105    30.0
              * S_Graph
 247          UI      0.0   93.69  350.79   575.8   358.4  256.36   166.3  116.96   72.31   50.43
1                                          HEC-1 INPUT                                                    PAGE  7

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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 248          UI   32.03   22.66   11.44   11.44   11.44     0.0

 249          KK    CK16   CNAME     16R
 250          KO       0       0     0.0       0      22
 251          HC       2   0.318

 252          KK     16R   CNAME     16C
 253          KO       0       0     0.0       0      22
 254          RS       2    FLOW    -1.0     0.0
 255          RC    0.07    0.05    0.07 6151.36  0.0381     0.0
              * 16R
 256          RX     0.0    32.3   43.61   60.76    87.2  197.15  384.48  729.13
 257          RY  1921.1  1910.0  1905.2 1899.07 1903.45 1908.85 1912.74 1932.42

 258          KK     K29
 259          KO       0       0     0.0       1      22
 260          BA   0.226
 261          LG    0.35   0.294   8.258   0.074  25.246
              * S_Graph
 262          UI     0.0   24.59   53.11  120.15  170.13  220.37  253.44  159.08  134.26  114.18
 263          UI   95.39   74.93   60.67   53.68   41.58   31.42   27.38   22.08   18.85   13.78
 264          UI   12.03   12.03    5.91    4.71    4.71    4.71    4.71    4.71    4.71     0.0

 265          KK   CK14L   CNAME     14R
 266          KO       0       0     0.0       0      22
 267          HC       2   0.543

 268          KK    CK14   CNAME     14R
 269          KO       0       0     0.0       0      22
 270          HC       2   1.293

 271          KK     14R   CNAME     14C
 272          KO       0       0     0.0       0      22
 273          RS       2    FLOW    -1.0     0.0
 274          RC    0.07    0.05    0.07 5620.06  0.0121     0.0
              * 14R
 275          RX     0.0  143.28  226.72  272.03   378.6   505.0   618.6  709.22
 276          RY  1757.7 1752.06 1748.43 1747.34 1748.51 1755.83 1763.79 1764.99

 277          KK     K25
 278          KO       0       0     0.0       1      22
 279          BA  0.4209
 280          LG    0.35   0.226  10.024   0.037     0.0
              * S_Graph
 281          UI     0.0    36.1   49.22  127.97  200.94  265.02  316.39  341.96  341.16  313.24
 282          UI  255.31  203.65  164.64  131.61  104.84   83.31    67.2   55.35   40.15   35.75
 283          UI   24.71   24.71    16.0    8.79    8.79    8.79    8.79    8.79    8.79     0.0

 284          KK   CK13R   CNAME     13R
 285          KO       0       0     0.0       0      22
 286          HC       2   1.715
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 287          KK     K33
 288          KO       0       0     0.0       1      22
 289          BA  0.0973
 290          LG    0.35   0.204  10.691   0.029  12.308
              * S_Graph
 291          UI     0.0   15.79    62.6  108.66  158.21  100.29   77.91   60.47   43.04   34.35
 292          UI   23.79   18.01   13.44   10.13     7.5    5.81    2.94    2.94    2.94    2.94
 293          UI     0.0

 294          KK     K34
 295          KO       0       0     0.0       1      22
 296          BA   0.225
 297          LG    0.35   0.267   8.953   0.056  14.425
              * S_Graph
 298          UI     0.0   65.96  250.89  440.77  303.35  215.65  149.16  104.35   67.33   47.68
 299          UI   32.31   22.35   13.45    8.75    8.75    8.75     0.0

 300          KK    CK18   CNAME     18R
 301          KO       0       0     0.0       0      22
 302          HC       2   0.322

 303          KK     18R   CNAME     18C
 304          KO       0       0     0.0       0      22
 305          RS       2    FLOW    -1.0     0.0
 306          RC    0.07    0.05    0.07 4071.62  0.0127     0.0
              * 18R
 307          RX     0.0  140.94  230.23  305.36  384.39  532.87  668.87  829.87
 308          RY  1742.0 1742.07 1741.69 1738.41 1741.17 1744.18 1747.55 1750.98

 309          KK     K32
 310          KO       0       0     0.0       1      22
 311          BA  0.2059
 312          LG    0.35   0.237   9.878   0.041   0.346
              * S_Graph
 313          UI     0.0   26.66   78.29  158.96  215.95  278.46  171.81  140.16   115.1    90.8
 314          UI   67.31   58.28   41.72   32.56    27.3   20.44   15.58   13.05   11.36    5.11
 315          UI    5.11    5.11    5.11    5.11    5.11

 316          KK   CK13L   CNAME     13R
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 317          KO       0       0     0.0       0      22
 318          HC       2   0.529

 319          KK    CK13   CNAME     13R
 320          KO       0       0     0.0       0      22
 321          HC       2   2.242

 322          KK     13R   CNAME     13C
 323          KO       0       0     0.0       0      22
 324          RS       1    FLOW    -1.0     0.0
 325          RC    0.07    0.05    0.07 2593.08  0.0071     0.0
              * 13R
 326          RX     0.0  238.17  396.39  499.25  649.86  779.91  896.53 1012.06
 327          RY  1707.9 1703.92 1701.03  1697.0 1696.95  1705.4 1713.82 1714.96
1                                          HEC-1 INPUT                                                    PAGE  9

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


 328          KK     K19
 329          KO       0       0     0.0       1      22
 330          BA   0.108
 331          LG    0.35   0.245   9.766   0.045     0.0
              * S_Graph
 332          UI     0.0   12.37    29.5    64.2   89.11  122.18  110.94   74.97   63.27   53.15
 333          UI   43.04   32.86   28.39   22.89    17.1   14.33   11.84    9.48    7.23    6.05
 334          UI    6.05    2.76    2.37    2.37    2.37    2.37    2.37    2.37

 335          KK   CK12R   CNAME     12R
 336          KO       0       0     0.0       0      22
 337          HC       2   2.350

 338          KK     K24
 339          KO       0       0     0.0       1      22
 340          BA  0.3195
 341          LG    0.35   0.345   7.072   0.114  26.883
              * S_Graph
 342          UI     0.0  104.43  394.13  659.21   418.5  300.22  196.59  138.45   86.83   60.51
 343          UI   39.33   29.32   13.06   13.06   13.06     0.0

 344          KK     K23
 345          KO       0       0     0.0       1      22
 346          BA  0.0797
 347          LG    0.35    0.33     7.3   0.105    30.0
              * S_Graph
 348          UI     0.0   62.01  214.82  146.92   86.25   48.86   26.42   14.87    7.86    4.74
 349          UI    4.74

 350          KK    CK21   CNAME     21R
 351          KO       0       0     0.0       0      22
 352          HC       2   0.399

 353          KK     21R   CNAME     21C
 354          KO       0       0     0.0       0      22
 355          RS       3    FLOW    -1.0     0.0
 356          RC    0.07    0.05    0.07 8569.08  0.0216     0.0
              * 21R
 357          RX     0.0  158.07   256.1   307.5  425.11  526.75  641.28  764.28
 358          RY  1870.5  1864.0 1860.04 1857.37  1850.3 1856.07 1869.46 1906.45

 359          KK     K22
 360          KO       0       0     0.0       1      22
 361          BA   0.627
 362          LG    0.35   0.297   8.116   0.078  18.225
              * S_Graph
 363          UI     0.0   58.81   97.25  228.18  361.55   441.7  579.26  584.98  382.85  329.91
 364          UI  287.32  247.82  209.09  166.77  141.86  128.26  102.44    80.0   69.97   64.41
 365          UI    45.6   45.08   31.72   28.78   28.78   20.99   11.27   11.27   11.27   11.27
 366          UI   11.27   11.27   11.27   11.27
1                                          HEC-1 INPUT                                                    PAGE 10

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


 367          KK    CK20    CNAME     20R
 368          KO       0       0     0.0       0      22
 369          HC       2   1.026

 370          KK     20R   CNAME     20C
 371          KO       0       0     0.0       0      22
 372          RS       1    FLOW    -1.0     0.0
 373          RC    0.07    0.05    0.07 1188.63  0.0127     0.0
              * 20R
 374          RX     0.0   98.99   153.7   176.7   216.7  316.43  441.24  515.26
 375          RY  1722.0 1720.14 1719.86 1718.88  1719.9 1719.74 1719.34 1724.65

 376          KK     K21
 377          KO       0       0     0.0       1      22
 378          BA   0.133
 379          LG    0.35   0.328   7.365   0.102   0.175
              * S_Graph
 380          UI     0.0   18.83   63.83  123.18  174.74  164.89  108.34   88.05   69.04   50.39
 381          UI   41.81   29.91    22.7   18.17   14.44    9.37    9.22     5.1    3.61    3.61
 382          UI    3.61    3.61     0.0
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 383          KK    CK19   CNAME     19R
 384          KO       0       0     0.0       0      22
 385          HC       2   1.159

 386          KK     19R   CNAME     19C
 387          KO       0       0     0.0       0      22
 388          RS       2    FLOW    -1.0     0.0
 389          RC    0.07    0.05    0.07 2871.34  0.0106     0.0
              * 19R
 390          RX     0.0  223.89  292.04  376.47  438.47  492.47  574.47  678.92
 391          RY  1710.8 1706.21  1704.9  1699.1 1699.74 1707.72  1707.8  1707.8

 392          KK     K20
 393          KO       0       0     0.0       1      22
 394          BA  0.1849
 395          LG    0.35   0.184   11.39   0.021     0.0
              * S_Graph
 396          UI     0.0   21.68   53.82  115.64  159.04  226.11  176.83  127.78  107.76   89.75
 397          UI   71.36   54.81   47.82   37.23    27.7   23.82   18.22   16.31   10.61   10.61
 398          UI    8.34    4.16    4.16    4.16    4.16    4.16    4.16     0.0

 399          KK   CK12L   CNAME     12R
 400          KO       0       0     0.0       0      22
 401          HC       2   1.344

 402          KK    CK12   CNAME     12R
 403          KO       0       0     0.0       0      22
 404          HC       2   3.694
```



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


 405          KK     12R   CNAME     12C
 406          KO       0       0     0.0       0      22
 407          RS       2    FLOW    -1.0     0.0
 408          RC    0.07    0.05    0.07 4130.51  0.0057     0.0
              * 12R
 409          RX     0.0    87.0   126.0   175.0   253.0   311.0   379.0  457.64
 410          RY  1950.9 1920.02 1906.06 1889.62 1874.16 1881.93 1893.97 1910.23

 411          KK     K15
 412          KO       0       0     0.0       1      22
 413          BA   0.235
 414          LG    0.35   0.242   9.807   0.044     0.0
              * S_Graph
 415          UI     0.0   21.68   34.76   84.66   132.0  170.85  197.79  207.81  196.82  166.03
 416          UI  131.05  103.01   81.82   63.36    49.6   39.41   32.24   22.98   18.79   14.84
 417          UI   14.24    5.28    5.28    5.28    5.28    5.28    5.28     0.0

 418          KK     K17
 419          KO       0       0     0.0       1      22
 420          BA  0.1586
 421          LG    0.35   0.174  11.679   0.019     0.0
              * S_Graph
 422          UI     0.0   13.69   18.95   48.95   76.73  101.12  120.24  130.05  129.11  117.85
 423          UI   95.43   76.24   61.24   49.01   39.38   30.54    25.0   20.99   14.54   12.96
 424          UI    9.37    9.37    5.27    3.33    3.33    3.33    3.33    3.33    3.33     0.0

 425          KK     K18
 426          KO       0       0     0.0       1      22
 427          BA  0.1282
 428          LG    0.35   0.178  11.562    0.02     0.0
              * S_Graph
 429          UI     0.0   14.85   36.27   78.72  114.42  137.01  140.26  122.34   91.87   67.87
 430          UI   50.55    36.9   27.45   20.49    15.4   10.17    9.46    3.61    3.61    3.61
 431          UI    3.61    3.61     0.0

 432          KK    CK23   CNAME     23R
 433          KO       0       0     0.0       0      22
 434          HC       2   0.287

 435          KK     23R   CNAME     23C
 436          KO       0       0     0.0       0      22
 437          RS       2    FLOW    -1.0     0.0
 438          RC    0.07    0.05    0.07 4550.66  0.0091     0.0
              * 23R
 439          RX     0.0  188.22  282.03  356.92   455.0  557.65  631.98  724.74
 440          RY  1711.9 1708.89 1707.98  1708.0 1707.88  1709.0 1710.01 1711.14

 441          KK     K16
 442          KO       0       0     0.0       1      22
 443          BA  0.2250
 444          LG    0.35   0.213  10.356   0.032     0.0
              * S_Graph
 445          UI     0.0   20.33   31.21   77.31  120.14  157.33  183.17  194.83  187.73  161.65
 446          UI  128.98  101.72   80.66   63.67   49.99   39.85   32.07   23.89   20.48   13.92
```



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

 447          UI   13.92    8.22    4.95    4.95    4.95    4.95    4.95    4.95     0.0

 448          KK    CK22   CNAME     22R
 449          KO       0       0     0.0       0      22
```

```
 450          HC       2   0.512

 451          KK     22R   CNAME     22C
 452          KO       0       0     0.0       0      22
 453          RS       2    FLOW    -1.0     0.0
 454          RC    0.07    0.05    0.07 3227.13  0.0078     0.0
              * 22R
 455          RX     0.0    87.0   126.0   175.0   253.0   311.0   379.0  457.64
 456          RY  1950.9 1920.02 1906.06 1889.62 1874.16 1881.93 1893.97 1910.23

 457          KK    CK3R   CNAME      3R
 458          KO       0       0     0.0       0      22
 459          HC       3   4.442

 460          KK     CK3   CNAME      3R
 461          KO       0       0     0.0       0      22
 462          HC       2   6.371

 463          KK      3R   CNAME      3C
 464          KO       0       0     0.0       0      22
 465          RS       1    FLOW    -1.0     0.0
 466          RC    0.07    0.05    0.07  111.27  0.0156     0.0
              * 3R
 467          RX     0.0  145.34  201.25  239.32  284.05  342.36  405.01  501.05
 468          RY  1671.2 1669.03 1668.46 1667.98 1668.53 1668.14 1672.63 1673.18

 469          KK     K35
 470          KO       0       0     0.0       1      22
 471          BA   0.302
 472          LG    0.35   0.163  12.004   0.016     0.0
              * S_Graph
 473          UI     0.0   18.28   18.28   33.41   62.87   90.39  114.91  136.66  156.86  167.41
 474          UI  175.19  174.11  165.94  150.12  128.99  108.65   93.71   80.83   68.48   58.65
 475          UI   50.86   41.46   35.83   31.71   28.03   21.46   19.38   17.01   12.51   12.51
 476          UI   12.51    7.62    4.45    4.45    4.45    4.45    4.45    4.45    4.45    4.45
 477          UI    4.45     0.0

 478          KK      K2
 479          KO       0       0     0.0       1      22
 480          BA  0.0009
 481          LG    0.35    0.36   6.805   0.128     0.0
              * S_Graph
 482          UI     0.0    7.35     0.0

 483          KK     CK2   CNAME      2R
 484          KO       0       0     0.0       0      22
 485          HC       3   6.674
```



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


 486          KK      2R   CNAME      2C
 487          KO       0       0     0.0       0      22
 488          RS       1    FLOW    -1.0     0.0
 489          RC    0.07    0.05    0.07 1037.71  0.0052     0.0
              * 2R
 490          RX     0.0    74.0   166.0  221.08  280.08   500.1  783.07  994.37
 491          RY  1660.0 1653.35  1652.0 1650.94 1651.55  1653.0 1654.01 1659.84

 492          KK      K1
 493          KO       0       0     0.0       1      22
 494          BA  0.0777
 495          LG    0.35    0.36   6.805   0.128     0.0
              * S_Graph
 496          UI     0.0   41.38  149.85   186.3  112.11   56.53   28.79   15.09    5.03    4.97
 497          UI     0.0

 498          KK     CK1   CNAME      1R
 499          KO       0       0     0.0       0      22
 500          HC       2   6.752

 501          KK      1R   CNAME      1C
 502          KO       0       0     0.0       0      22
 503          RN      1R
 504          ZZ
```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE     (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

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

   43        K13
              .
              .
   50         .         K14
              .           .
              .           .
   57      CK24............
             V
             V
   60       24R
              .
              .
```

```
 66          .          K9
             .           V
             .           V
 72          .          9R
             .           .
             .           .
 78          .           .          K8
             .           .           .
             .           .           .
 84          .         CK8............
             .           V
             .           V
 87          .          8R
             .           .
             .           .
 93          .           .         K11
             .           .           .
             .           .           .
 99          .           .           .         K12
             .           .           .           .
             .           .           .           .
105          .           .        CK11............
             .           .           V
             .           .           V
108          .           .         11R
             .           .           .
             .           .           .
114          .           .           .         K10
             .           .           .           .
             .           .           .           .
121          .           .        CK10............
             .           .           V
             .           .           V
124          .           .         10R
             .           .           .
             .           .           .
130          .           .           .          K7
             .           .           .           .
             .           .           .           .
136          .         CK7........................
             .           V
             .           V
139          .          7R
             .           .
             .           .
145          .           .          K6
             .           .           .
             .           .           .
151          .         CK6............
             .           V
             .           V
154          .          6R
             .           .
             .           .
160          .           .          K5
             .           .           .
             .           .           .
166          .         CK5............
             .           V
             .           V
169          .          5R
             .           .
             .           .
175          .           .          K4
             .           .           .
             .           .           .
182        CK4........................
             V
             V
185         4R
             .
             .
191          .          K3
             .           .
             .           .
197      CK3L............
             .
             .
200          .         K27
             .           .
             .           .
207          .           .         K28
             .           .           .
             .           .           .
213          .        CK15............
             .           V
             .           V
216          .         15R
             .           .
             .           .
222          .           .         K26
             .           .           .
             .           .           .
229          .       CK14R............
             .           .
```

```
232          .          .        K31
             .          .         V
             .          .         V
237          .          .        17R
             .          .          .
             .          .          .
243          .          .          .          K30
             .          .          .            .
             .          .          .            .
249          .          .      CK16............
             .          .         V
             .          .         V
252          .          .        16R
             .          .          .
             .          .          .
258          .          .          .          K29
             .          .          .            .
             .          .          .            .
265          .          .     CK14L............
             .          .          .
             .          .          .
268          .      CK14............
             .         V
             .         V
271          .       14R
             .          .
             .          .
277          .          .        K25
             .          .          .
             .          .          .
284          .     CK13R............
             .          .
             .          .
287          .          .        K33
             .          .          .
             .          .          .
294          .          .          .          K34
             .          .          .            .
             .          .          .            .
300          .          .      CK18............
             .          .         V
             .          .         V
303          .          .        18R
             .          .          .
             .          .          .
309          .          .          .          K32
             .          .          .            .
             .          .          .            .
316          .          .     CK13L............
             .          .          .
             .          .          .
319          .      CK13............
             .         V
             .         V
322          .       13R
             .          .
             .          .
328          .          .        K19
             .          .          .
             .          .          .
335          .     CK12R............
             .          .
             .          .
338          .          .        K24
             .          .          .
             .          .          .
344          .          .          .          K23
             .          .          .            .
             .          .          .            .
350          .          .      CK21............
             .          .         V
             .          .         V
353          .          .        21R
             .          .          .
             .          .          .
359          .          .          .          K22
             .          .          .            .
             .          .          .            .
367          .          .      CK20............
             .          .         V
             .          .         V
370          .          .        20R
             .          .          .
             .          .          .
376          .          .          .          K21
             .          .          .            .
             .          .          .            .
383          .          .      CK19............
             .          .         V
             .          .         V
386          .          .        19R
             .          .          .
             .          .          .
392          .          .          .          K20
```

```
                .          .          .          .
                .          .          .          .
  399           .          .      CK12L...........
                .          .          .
                .          .          .
  402           .       CK12...........
                .          V
                .          V
  405           .        12R
                .          .
                .          .
  411           .          .        K15
                .          .          .
                .          .          .
  418           .          .          .        K17
                .          .          .          .
                .          .          .          .
  425           .          .          .          .        K18
                .          .          .          .          .
                .          .          .          .          .
  432           .          .          .      CK23...........
                .          .          .         V
                .          .          .         V
  435           .          .          .       23R
                .          .          .          .
                .          .          .          .
  441           .          .          .          .        K16
                .          .          .          .          .
                .          .          .          .          .
  448           .          .          .      CK22...........
                .          .          .         V
                .          .          .         V
  451           .          .          .       22R
                .          .          .          .
                .          .          .          .
  457           .       CK3R......................
                .          .
                .          .
  460        CK3...........
               V
               V
  463         3R
                .
                .
  469           .        K35
                .          .
                .          .
  478           .          .         K2
                .          .          .
                .          .          .
  483        CK2......................
               V
               V
  486         2R
                .
                .
  492           .         K1
                .          .
                .          .
  498        CK1...........
               V
               V
  501         1R
```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```
1****************************************
 *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *
 *              JUN   1998              *
 *           VERSION 4.1                *
 *                                      *
 *  RUN DATE   27JAN05  TIME  17:28:38  *
 *                                      *
 ****************************************
```

```
****************************************
*                                      *
*    U.S. ARMY CORPS OF ENGINEERS      *
*    HYDROLOGIC ENGINEERING CENTER     *
*          609 SECOND STREET           *
*       DAVIS, CALIFORNIA 95616        *
*           (916) 756-1104             *
*                                      *
****************************************
```

```
                    HEC-1 Analysis using WMS
                    New River West Tributaries FDS - FCD 2003 C057
                    Basin K - 100-Year 24-Hour Storm Event
                    January 2005 (Sub-basin K8; revised flowpath)

  6 IO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE

  7 IN        TIME DATA FOR INPUT TIME SERIES
                     JXMIN        15  TIME INTERVAL IN MINUTES
                    JXDATE    28APR 4  STARTING DATE
                    JXTIME          0  STARTING TIME

 19 IN        TIME DATA FOR INPUT TIME SERIES
```

```
                JXMIN          15  TIME INTERVAL IN MINUTES
               JXDATE     28APR 4  STARTING DATE
               JXTIME           0  STARTING TIME

31 IN        TIME DATA FOR INPUT TIME SERIES
                JXMIN          15  TIME INTERVAL IN MINUTES
               JXDATE     28APR 4  STARTING DATE
               JXTIME           0  STARTING TIME

   IT        HYDROGRAPH TIME DATA
                 NMIN           5  MINUTES IN COMPUTATION INTERVAL
                IDATE     28APR 4  STARTING DATE
                ITIME        0000  STARTING TIME
                   NQ         200  NUMBER OF HYDROGRAPH ORDINATES
               NDDATE     28APR 4  ENDING DATE
               NDTIME        1635  ENDING TIME
               ICENT          19  CENTURY MARK

            COMPUTATION INTERVAL     .08 HOURS
                 TOTAL TIME BASE   16.58 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

 8 JD       INDEX STORM NO. 1
                STRM        4.53  PRECIPITATION DEPTH
                TRDA         .01  TRANSPOSITION DRAINAGE AREA

 9 PI         PRECIPITATION PATTERN
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
              .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
              .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
              .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00

20 JD       INDEX STORM NO. 2
                STRM        4.31  PRECIPITATION DEPTH
                TRDA       10.00  TRANSPOSITION DRAINAGE AREA

21 PI         PRECIPITATION PATTERN
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .01       .00       .01
              .01       .01       .01       .01       .01       .01       .01       .01       .03       .03
              .03       .09       .09       .09       .01       .01       .01       .01       .01       .01
              .01       .01       .01       .01       .01       .01       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00

32 JD       INDEX STORM NO. 3
                STRM        4.16  PRECIPITATION DEPTH
                TRDA       20.00  TRANSPOSITION DRAINAGE AREA

33 PI         PRECIPITATION PATTERN
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
              .00       .00       .00       .00       .00       .00       .00       .00       .00       .00
```

```
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .01     .00     .01
.01     .01     .01     .01     .01     .01     .01     .01     .03     .03
.03     .09     .09     .09     .01     .01     .01     .01     .01     .01
.01     .01     .01     .01     .01     .01     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00     .00
.00     .00     .00     .00     .00     .00     .00     .00     .00

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
43 KK         *       K13  *
              *            *
              **************

44 KO             OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

                 SUBBASIN RUNOFF DATA

45 BA             SUBBASIN CHARACTERISTICS
                      TAREA         .08  SUBBASIN AREA

46 LG             GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .17  MOISTURE DEFICIT
                       PSIF       11.95  WETTING FRONT SUCTION
                      XKSAT         .02  HYDRAULIC CONDUCTIVITY
                      RTIMP        1.98  PERCENT IMPERVIOUS AREA

45 UI             INPUT UNITGRAPH,  24 ORDINATES,  VOLUME = 1.00
                        .0      10.8      32.1      64.9      88.3     112.1      69.0      56.4      46.2      36.1
                      27.1      23.3      16.5      13.1      10.8       8.3       6.0       5.3       4.2       2.1
                       2.1       2.1       2.1       2.1
                                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

              **************
              *            *
50 KK         *       K14  *
              *            *
              **************

51 KO             OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

                 SUBBASIN RUNOFF DATA

52 BA             SUBBASIN CHARACTERISTICS
                      TAREA         .30  SUBBASIN AREA

53 LG             GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .18  MOISTURE DEFICIT
                       PSIF       11.45  WETTING FRONT SUCTION
                      XKSAT         .02  HYDRAULIC CONDUCTIVITY
                      RTIMP        7.48  PERCENT IMPERVIOUS AREA

52 UI             INPUT UNITGRAPH,  25 ORDINATES,  VOLUME = 1.00
                        .0      37.7     103.3     216.8     292.4     406.9     257.6     207.0     171.9     138.9
                     103.9      87.2      69.3      50.8      42.4      32.6      28.0      18.5      18.5      12.3
                       7.2       7.2       7.2       7.2       7.2
                                                                                  ***
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 57 KK    *      CK24  *        CNAME     24R
          *            *
          **************

 58 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

 59 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 60 KK    *       24R  *        CNAME     24C
          *            *
          **************

 61 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 62 RS          STORAGE ROUTING
                     NSTPS           2  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

 63 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       3448.  REACH LENGTH
                       SEL       .0099  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 65 RY        ELEVATION   1704.20   1698.16   1692.52   1690.76   1690.30   1693.02   1695.09   1705.54
 64 RX        DISTANCE        .00    108.23    190.07    250.51    338.48    620.93    803.03   1085.49

                                                    ***

                                       COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      6.79     21.93     44.08     72.41    106.01    144.84    187.25    231.77    278.41
          OUTFLOW        .00    153.37    789.57   2062.64   4354.73   7626.79  11782.40  16903.25  22884.92  29706.55
        ELEVATION    1690.30   1691.10   1691.90   1692.71   1693.51   1694.31   1695.11   1695.91   1696.72   1697.52

          STORAGE     327.17    378.16    431.44    487.01    544.87    605.02    667.46    732.19    799.00    867.24
          OUTFLOW   37353.74  45814.37  55109.61  65244.16  76224.59  88058.77 100755.50 114324.50 129010.00 144692.00
        ELEVATION    1698.32   1699.12   1699.93   1700.73   1701.53   1702.33   1703.13   1703.94   1704.74   1705.54

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    22885. TO   144692.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

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          *            *
 66 KK    *         K9 *
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          *            *
          **************

 67 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 68 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .08  SUBBASIN AREA

 69 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .32  STARTING LOSS
                        DTH         .23  MOISTURE DEFICIT
                       PSIF        8.82  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP        5.26  PERCENT IMPERVIOUS AREA

 68 UI          INPUT UNITGRAPH,  12 ORDINATES,  VOLUME = 1.00
                        .0      49.9     179.2     170.2      97.5      57.2      33.3      20.4      11.8       5.8
                      4.4       4.4

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


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          *            *
 72 KK    *        9R  *        CNAME      9C
          *            *
          **************

 73 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 74 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 75 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2027.  REACH LENGTH
                        SEL      .0075  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 77 RY        ELEVATION   1773.20   1771.73   1770.86   1769.94   1769.97   1770.18   1770.85   1771.51
 76 RX        DISTANCE        .00     27.70     51.81     77.30    158.44    191.92    226.41    260.41

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .68      1.65      2.74      3.94      5.24      6.66      8.18      9.81     11.55
          OUTFLOW        .00     10.03     39.35     86.21    148.52    225.94    322.18    436.44    566.95    713.96
        ELEVATION    1769.94   1770.11   1770.28   1770.45   1770.63   1770.80   1770.97   1771.14   1771.31   1771.48

          STORAGE      13.37     15.23     17.12     19.03     20.97     22.93     24.92     26.94     28.98     31.04
          OUTFLOW     882.32   1068.12   1269.96   1487.24   1719.62   1966.85   2228.71   2505.00   2795.56   3100.30
        ELEVATION    1771.66   1771.83   1772.00   1772.17   1772.34   1772.51   1772.69   1772.86   1773.03   1773.20


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 78 KK      *        K8  *
            *            *
            **************

 79 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 80 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .04  SUBBASIN AREA

 81 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .19  MOISTURE DEFICIT
                       PSIF       11.07  WETTING FRONT SUCTION
                      XKSAT         .03  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 80 UI          INPUT UNITGRAPH,  12 ORDINATES,  VOLUME = 1.00
                       .0      24.4      87.3      89.0      50.6      30.0      18.0      10.7       6.4       3.5
                      2.2       2.2
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


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            *            *
 84 KK      *       CK8  *        CNAME      8R
            *            *
            **************

 85 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 86 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 87 KK      *        8R  *        CNAME      8C
            *            *
            **************

 88 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

 89 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 90 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH        934.  REACH LENGTH
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                    SEL       .0099  ENERGY SLOPE
                  ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                      --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 92 RY     ELEVATION  1741.70   1741.70   1741.12   1740.46   1740.16   1741.02   1741.10   1741.10
 91 RX     DISTANCE       .00     19.37     38.61     56.43     89.94    122.75    145.24    167.96

                                                   ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

        STORAGE        .00       .01       .04       .10       .17       .25       .35       .45       .57       .69
        OUTFLOW        .00       .17      1.09      3.22      7.11     13.12     20.85     30.35     41.70     54.95
      ELEVATION    1740.16   1740.24   1740.32   1740.40   1740.48   1740.57   1740.65   1740.73   1740.81   1740.89

        STORAGE        .82       .96      1.16      1.38      1.62      1.85      2.10      2.34      2.59      2.85
        OUTFLOW      70.19     88.31    110.70    138.72    170.32    205.27    243.46    284.79    329.20    374.73
      ELEVATION    1740.97   1741.05   1741.13   1741.21   1741.29   1741.38   1741.46   1741.54   1741.62   1741.70


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          *            *
 93 KK    *       K11  *
          *            *
          **************

 94 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 95 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .31  SUBBASIN AREA

 96 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .27  STARTING LOSS
                       DTH         .20  MOISTURE DEFICIT
                      PSIF        6.95  WETTING FRONT SUCTION
                     XKSAT         .18  HYDRAULIC CONDUCTIVITY
                     RTIMP       27.24  PERCENT IMPERVIOUS AREA

 95 UI          INPUT UNITGRAPH,  19 ORDINATES,  VOLUME = 1.00
                       .0      63.0     241.0     410.2     519.0     312.8     241.9     175.9     127.6      94.1
                     64.5      48.6      35.3      26.2      17.6      10.3      10.3      10.3      10.3

                                                   ***


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          *            *
 99 KK    *       K12  *
          *            *
          **************

100 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

101 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .12  SUBBASIN AREA

102 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .25  STARTING LOSS
                       DTH         .15  MOISTURE DEFICIT
                      PSIF        7.30  WETTING FRONT SUCTION
                     XKSAT         .17  HYDRAULIC CONDUCTIVITY
                     RTIMP       30.00  PERCENT IMPERVIOUS AREA
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101 UI          INPUT UNITGRAPH,  12 ORDINATES,  VOLUME =  .99
                     .0      62.6     223.4     261.0     147.8      90.7      56.8      34.0      20.5      13.4
                    6.0       6.0
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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            *            *
105 KK      *      CK11  *        CNAME     11R
            *            *
            **************

106 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

107 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
108 KK      *       11R  *        CNAME     11C
            *            *
            **************

109 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

110 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

111 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       6211.  REACH LENGTH
                        SEL       .0200  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
113 RY        ELEVATION   1950.90   1920.02   1906.06   1889.62   1874.16   1881.93   1893.97   1910.23
112 RX        DISTANCE        .00     87.00    126.00    175.00    253.00    311.00    379.00    457.64
                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00     14.55     58.18    128.50    223.61    340.43    476.20    630.16    802.29    992.33
          OUTFLOW        .00    681.07   4384.95  13361.29  27913.52  49318.10  77289.74 112074.10 154641.40 210290.80
        ELEVATION    1874.16   1878.20   1882.24   1886.28   1890.32   1894.35   1898.39   1902.43   1906.47   1910.51

          STORAGE    1193.73   1401.63   1616.04   1837.00   2064.51   2298.58   2539.20   2786.37   3040.09   3300.37
          OUTFLOW  277455.60 352844.60 436310.50 527756.10 627115.10 734343.30 849414.60 972317.501103053.001241629.00
        ELEVATION    1914.55   1918.59   1922.63   1926.67   1930.71   1934.74   1938.78   1942.82   1946.86   1950.90

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    13361. TO  1241629.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)
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            *            *
114 KK      *       K10  *
            *            *
            **************

115 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

116 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .42  SUBBASIN AREA

117 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .28  STARTING LOSS
                        DTH         .19  MOISTURE DEFICIT
                       PSIF        7.72  WETTING FRONT SUCTION
                      XKSAT         .13  HYDRAULIC CONDUCTIVITY
                      RTIMP       16.11  PERCENT IMPERVIOUS AREA

116 UI          INPUT UNITGRAPH,  26 ORDINATES,  VOLUME = 1.00
                        .0      50.2     130.5     276.8     376.7     541.2     371.5     285.8     240.1     197.1
                     151.5     121.5     103.3      75.3      60.6      51.4      38.5      31.0      24.5      24.5
                      10.9       9.6       9.6       9.6       9.6       9.6
                                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
121 KK      *      CK10  *        CNAME     10R
            *            *
            **************

122 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


123 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

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            *            *
124 KK      *       10R  *        CNAME     10C
            *            *
            **************

125 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

126 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT
```

```
127 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       2656.  REACH LENGTH
                       SEL       .0105  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
129 RY        ELEVATION   1773.80   1771.81   1771.00   1770.27   1771.04   1771.09   1772.82   1774.78
128 RX        DISTANCE        .00    154.06    243.55    295.18    337.60    412.12    503.14    589.15
                                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .22       .87      1.95      4.19      7.37     11.10     15.38     20.11     25.30
          OUTFLOW        .00      2.62     16.61     48.96    108.46    248.34    441.93    691.95    999.04   1362.99
        ELEVATION    1770.27   1770.51   1770.74   1770.98   1771.22   1771.46   1771.69   1771.93   1772.17   1772.41

          STORAGE      30.93     37.01     43.51     50.43     57.77     65.52     73.53     81.68     89.98     98.44
          OUTFLOW    1785.26   2268.07   2813.87   3422.29   4094.90   4840.31   5698.68   6623.26   7613.20   8668.02
        ELEVATION    1772.64   1772.88   1773.12   1773.36   1773.59   1773.83   1774.07   1774.31   1774.54   1774.78


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          **************
          *            *
130 KK    *        K7  *
          *            *
          **************

131 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

132 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .07  SUBBASIN AREA

133 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .35  MOISTURE DEFICIT
                      PSIF        4.15  WETTING FRONT SUCTION
                     XKSAT         .43  HYDRAULIC CONDUCTIVITY
                     RTIMP         .00  PERCENT IMPERVIOUS AREA

132 UI          INPUT UNITGRAPH,  17 ORDINATES,  VOLUME = 1.00
                       .0      16.6      62.9     108.8     103.6      66.0      48.9      33.0      24.7      16.1
                     11.8       8.2       6.1       3.5       2.4       2.4       2.4
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
136 KK    *       CK7  *        CNAME      7R
          *            *
          **************

137 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


138 HC          HYDROGRAPH COMBINATION
                     ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
139 KK    *        7R  *        CNAME      7C
          *            *
          **************

140 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

141 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

142 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH        838.  REACH LENGTH
                        SEL       .0143  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
144 RY        ELEVATION   1741.10   1736.67   1733.09   1735.44   1736.24   1734.46   1739.36   1741.61
143 RX        DISTANCE        .00    176.15    323.64    433.66    552.88    673.72    781.28    878.91

                                                          ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .17       .68      1.53      2.88      4.91      7.75     11.66     16.25     21.09
          OUTFLOW        .00     10.08     63.98    188.64    391.95    763.69   1299.04   2143.18   3597.30   5400.46
        ELEVATION    1733.09   1733.54   1733.99   1734.44   1734.88   1735.33   1735.78   1736.23   1736.68   1737.13

          STORAGE      26.16     31.47     37.02     42.81     48.84     55.15     61.79     68.74     76.01     83.51
          OUTFLOW    7531.19   9982.94  12752.19  15837.45  19237.36  22893.56  26889.04  31226.90  35953.45  41298.24
        ELEVATION    1737.57   1738.02   1738.47   1738.92   1739.37   1739.82   1740.26   1740.71   1741.16   1741.61


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     2143. TO    41298.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
145 KK    *        K6  *
          *            *
          **************

146 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

147 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .08  SUBBASIN AREA

148 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .27  MOISTURE DEFICIT
                       PSIF        8.81  WETTING FRONT SUCTION
                      XKSAT         .06  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

147 UI          INPUT UNITGRAPH,  14 ORDINATES,  VOLUME = 1.00
                        .0      30.1     110.4     169.9     101.3      70.9      45.2      29.8      19.5      12.5
```

```
                    8.8       4.2       3.4       3.4
                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
151 KK    *       CK6  *        CNAME      6R
          *            *
          **************

152 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

153 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
154 KK    *         6R *        CNAME      6C
          *            *
          **************

155 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

156 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

157 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1894.  REACH LENGTH
                        SEL       .0102  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
159 RY        ELEVATION   1728.80   1726.01   1725.25   1717.71   1719.74   1722.51   1723.78   1723.80
158 RX        DISTANCE        .00    141.23    211.23    316.23    439.23    562.23    703.51    764.51
                                                                    ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .55      2.21      4.97      8.80     13.52     19.11     25.56     32.88     41.36
          OUTFLOW        .00     16.81    106.71    314.62    686.43   1242.95   1994.81   2962.07   4164.19   5815.90
        ELEVATION    1717.71   1718.29   1718.88   1719.46   1720.04   1720.63   1721.21   1721.80   1722.38   1722.96

          STORAGE      51.67     64.44     78.20     92.16    107.00    123.02    139.80    157.33    175.62    194.65
          OUTFLOW    7829.16  10214.02  13061.00  16300.67  20127.88  24372.47  29032.66  34107.42  39599.52  45512.88
        ELEVATION    1723.55   1724.13   1724.71   1725.30   1725.88   1726.47   1727.05   1727.63   1728.22   1728.80

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    34107. TO    45513.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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            **************
            *            *
160 KK      *        K5  *
            *            *
            **************

161 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

162 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .05  SUBBASIN AREA

163 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .32  MOISTURE DEFICIT
                       PSIF        7.56  WETTING FRONT SUCTION
                      XKSAT         .09  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

162 UI          INPUT UNITGRAPH,  12 ORDINATES,  VOLUME = 1.00
                        .0      15.9      61.9      96.8      88.6      53.7      31.1      18.3       9.9       6.1
                      2.6       2.6
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
166 KK      *       CK5  *        CNAME      5R
            *            *
            **************

167 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


168 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
169 KK      *        5R  *        CNAME      5C
            *            *
            **************

170 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

171 RS          STORAGE ROUTING
                     NSTPS           2  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

172 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
```

```
                    ANCH        .050  MAIN CHANNEL N-VALUE
                     ANR        .070  RIGHT OVERBANK N-VALUE
                   RLNTH       3449.  REACH LENGTH
                     SEL       .0100  ENERGY SLOPE
                   ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
174 RY      ELEVATION   1704.20   1698.16   1692.52   1690.76   1690.30   1693.02   1695.09   1705.54
173 RX      DISTANCE        .00    108.23    190.07    250.51    338.48    620.93    803.03   1085.49

                                                          ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      6.79     21.93     44.09     72.42    106.04    144.88    187.29    231.83    278.48
          OUTFLOW        .00    154.14    793.55   2073.03   4376.67   7665.21  11841.76  16988.40  23000.21  29856.20
        ELEVATION    1690.30   1691.10   1691.90   1692.71   1693.51   1694.31   1695.11   1695.91   1696.72   1697.52

          STORAGE     327.25    378.25    431.55    487.13    545.00    605.17    667.62    732.37    799.19    867.45
          OUTFLOW   37541.92  46045.18  55387.24  65572.84  76608.59  88502.38 101263.10 114900.40 129659.90 145420.90
        ELEVATION    1698.32   1699.12   1699.93   1700.73   1701.53   1702.33   1703.13   1703.94   1704.74   1705.54

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    23000. TO   145421.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
175 KK      *        K4  *
            *            *
            **************

176 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

177 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .30  SUBBASIN AREA

178 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .28  MOISTURE DEFICIT
                       PSIF        8.51  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

177 UI          INPUT UNITGRAPH,  21 ORDINATES,  VOLUME = 1.00
                         .0      37.0      98.4     209.6     298.2     347.1     342.1     278.1     201.5     148.4
                       108.1     76.5      59.3      39.8      28.5      25.3      10.4       9.0       9.0       9.0
                         9.0

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
182 KK      *       CK4  *        CNAME      4R
            *            *
            **************

183 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

184 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***
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*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
185 KK      *        4R  *        CNAME      4C
            *            *
            **************

186 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

187 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

188 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       1630.  REACH LENGTH
                        SEL       .0084  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
190 RY        ELEVATION   1704.20   1698.16   1692.52   1690.76   1690.30   1693.02   1695.09   1705.54
189 RX        DISTANCE        .00    108.23    190.07    250.51    338.48    620.93    803.03   1085.49

                                                    ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      3.21     10.37     20.84     34.22     50.11     68.46     88.51    109.55    131.60
          OUTFLOW        .00    141.27    727.30   1899.97   4011.29   7025.28  10853.15  15570.13  21080.04  27363.66
        ELEVATION    1690.30   1691.10   1691.90   1692.71   1693.51   1694.31   1695.11   1695.91   1696.72   1697.52

          STORAGE     154.65    178.75    203.94    230.20    257.55    285.98    315.50    346.09    377.68    409.93
          OUTFLOW   34407.74  42201.10  50763.24  60098.50  70212.94  81113.77  92809.20 105308.00 118835.30 133280.50
        ELEVATION    1698.32   1699.12   1699.93   1700.73   1701.53   1702.33   1703.13   1703.94   1704.74   1705.54

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    27364. TO   133280.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
191 KK      *         K3  *
            *            *
            **************

192 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

193 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .07  SUBBASIN AREA

194 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .38  MOISTURE DEFICIT
                       PSIF        5.37  WETTING FRONT SUCTION
                      XKSAT         .22  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA
```

```
193 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                      .0      15.1      58.1     102.5     120.3      99.6      64.4      41.4      26.2      16.7
                    10.5       7.0       3.1       3.1       3.1
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
197 KK      *      CK3L  *        CNAME      3R
            *            *
            **************

198 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

199 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
200 KK      *       K27  *
            *            *
            **************

201 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

               SUBBASIN RUNOFF DATA

202 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .27  SUBBASIN AREA

203 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .21  MOISTURE DEFICIT
                      PSIF       10.31  WETTING FRONT SUCTION
                     XKSAT         .03  HYDRAULIC CONDUCTIVITY
                     RTIMP        8.77  PERCENT IMPERVIOUS AREA

202 UI          INPUT UNITGRAPH,  24 ORDINATES,  VOLUME = 1.00
                      .0      36.2     111.8     222.4     304.1     362.5     223.9     182.8     149.1     112.2
                    87.7      71.8      51.6      41.7      32.2      26.6      17.7      17.7       9.8       6.9
                     6.9       6.9       6.9       6.9
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
207 KK      *       K28  *
            *            *
            **************

208 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS
```

```
                SUBBASIN RUNOFF DATA

 209 BA           SUBBASIN CHARACTERISTICS
                        TAREA          .35  SUBBASIN AREA

 210 LG           GREEN AND AMPT LOSS RATE
                        STRTL          .35  STARTING LOSS
                          DTH          .25  MOISTURE DEFICIT
                         PSIF         9.62  WETTING FRONT SUCTION
                        XKSAT          .05  HYDRAULIC CONDUCTIVITY
                        RTIMP        19.23  PERCENT IMPERVIOUS AREA

 209 UI           INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                          .0     111.0     420.8     709.9     454.8     326.4     215.6     151.9      95.7      66.6
                        43.8      33.4      14.0      14.0      14.0

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 213 KK     *      CK15  *        CNAME     15R
            *            *
            **************

 214 KO           OUTPUT CONTROL VARIABLES
                        IPRNT            4  PRINT CONTROL
                        IPLOT            0  PLOT CONTROL
                        QSCAL           0.  HYDROGRAPH PLOT SCALE
                        IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                         IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT         .083  TIME INTERVAL IN HOURS


 215 HC           HYDROGRAPH COMBINATION
                        ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 216 KK     *       15R  *        CNAME     15C
            *            *
            **************

 217 KO           OUTPUT CONTROL VARIABLES
                        IPRNT            4  PRINT CONTROL
                        IPLOT            0  PLOT CONTROL
                        QSCAL           0.  HYDROGRAPH PLOT SCALE
                        IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                         IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT         .083  TIME INTERVAL IN HOURS


                HYDROGRAPH ROUTING DATA

 218 RS           STORAGE ROUTING
                        NSTPS            1  NUMBER OF SUBREACHES
                         ITYP         FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC        -1.00  INITIAL CONDITION
                            X          .00 WORKING R AND D COEFFICIENT

 219 RC           NORMAL DEPTH CHANNEL
                          ANL         .070  LEFT OVERBANK N-VALUE
                         ANCH         .050  MAIN CHANNEL N-VALUE
                          ANR         .070  RIGHT OVERBANK N-VALUE
                        RLNTH        1756.  REACH LENGTH
                          SEL        .0109  ENERGY SLOPE
                        ELMAX           .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                                CROSS-SECTION DATA
                                --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 221 RY        ELEVATION   1789.40   1785.33   1783.53   1778.29   1779.03   1782.91   1788.61   1794.50
 220 RX        DISTANCE        .00    131.70    199.71    290.47    356.95    433.85    514.08    573.11

                                                                  ***

                                                COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

            STORAGE        .00      1.55      4.97      9.48     15.08     21.76     29.51     38.42     48.84     60.73
            OUTFLOW        .00     71.63    401.27   1000.28   1902.91   3146.48   4876.40   7282.76  10198.03  13634.10
```

```
        ELEVATION    1778.29   1779.14   1780.00   1780.85   1781.70   1782.56   1783.41   1784.26   1785.12   1785.97

          STORAGE      74.00     88.63    104.62    121.93    140.02    158.41    177.09    196.07    215.35    234.91
          OUTFLOW   17613.63  22159.79  27297.02  33072.91  39728.68  46999.00  54861.09  63301.99  72311.52  81881.55
        ELEVATION    1786.82   1787.67   1788.53   1789.38   1790.23   1791.09   1791.94   1792.79   1793.65   1794.50


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    13634. TO    81882.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 222 KK   *       K26  *
          *            *
          **************

 223 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

 224 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .13  SUBBASIN AREA

 225 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .17  MOISTURE DEFICIT
                       PSIF       11.84  WETTING FRONT SUCTION
                      XKSAT         .02  HYDRAULIC CONDUCTIVITY
                      RTIMP         .52  PERCENT IMPERVIOUS AREA

 224 UI          INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                        .0      21.2      84.3     146.5     214.0     136.2     105.7      82.2      58.6      46.6
                      32.6      24.5      18.4      13.9      10.1       8.1       4.0       4.0       4.0       4.0
                                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 229 KK   *     CK14R  *        CNAME     14R
          *            *
          **************

 230 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 231 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
 232 KK   *       K31  *
          *            *
          **************

 233 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
```

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                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

234 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .04  SUBBASIN AREA

235 LG        GREEN AND AMPT LOSS RATE
                    STRTL        .35  STARTING LOSS
                      DTH        .33  MOISTURE DEFICIT
                     PSIF       7.30  WETTING FRONT SUCTION
                    XKSAT        .10  HYDRAULIC CONDUCTIVITY
                    RTIMP      30.00  PERCENT IMPERVIOUS AREA

234 UI        INPUT UNITGRAPH,   8 ORDINATES,  VOLUME =  .99
                     .0      59.2     138.9      68.1      32.0      14.9       6.7       3.3

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
237 KK    *       17R  *        CNAME     17C
          *            *
          **************

238 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

239 RS        STORAGE ROUTING
                    NSTPS          2  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

240 RC        NORMAL DEPTH CHANNEL
                      ANL       .070  LEFT OVERBANK N-VALUE
                     ANCH       .050  MAIN CHANNEL N-VALUE
                      ANR       .070  RIGHT OVERBANK N-VALUE
                    RLNTH      3499.  REACH LENGTH
                      SEL      .0617  ENERGY SLOPE
                    ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
242 RY      ELEVATION   2150.00   2129.80   2121.61   2103.15   2103.16   2115.70   2133.27   2144.81
241 RX      DISTANCE        .00     86.05    119.05    168.05    198.20    238.20    314.20    373.20

                                                  ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

        STORAGE        .00      7.38     17.63     30.73     46.68     65.49     87.38    112.68    141.47    174.27
        OUTFLOW        .00   1088.93   3830.97   8329.49  14801.76  23473.23  35682.03  50630.68  69571.93  92868.88
      ELEVATION    2103.15   2105.62   2108.08   2110.55   2113.01   2115.48   2117.94   2120.41   2122.88   2125.34

        STORAGE     211.15    252.11    297.22    346.65    400.64    459.21    522.36    590.08    660.87    733.74
        OUTFLOW  119741.20 150396.20 185028.40 223690.90 266779.20 314558.30 367234.30 425378.50 491903.50 563633.30
      ELEVATION    2127.81   2130.27   2132.74   2135.21   2137.67   2140.14   2142.60   2145.07   2147.53   2150.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO   563633.
               THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
               THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
243 KK    *       K30  *
          *            *
          **************

244 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
```

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          *            *
          **************

 269 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 270 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                          ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 271 KK   *      14R   *        CNAME     14C
          *            *
          **************

 272 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 273 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 274 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       5620.  REACH LENGTH
                        SEL       .0121  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 276 RY        ELEVATION   1757.70   1752.06   1748.43   1747.34   1748.51   1755.83   1763.79   1764.99
 275 RX        DISTANCE        .00    143.28    226.72    272.03    378.60    505.00    618.60    709.22

                                                          ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      7.38     26.58     50.56     79.03    111.97    149.51    191.81    238.85    290.64
          OUTFLOW        .00    112.51    752.48   1933.16   3629.95   5863.95   8657.98  12057.59  16100.41  20823.41
        ELEVATION    1747.34   1748.27   1749.20   1750.13   1751.06   1751.98   1752.91   1753.84   1754.77   1755.70

          STORAGE     347.07    407.91    472.15    538.02    605.47    674.52    745.15    817.37    891.47    972.27
          OUTFLOW   26868.93  33789.59  41897.87  50870.75  60626.36  71155.30  82450.51  94506.79 107096.80 120258.70
        ELEVATION    1756.63   1757.56   1758.49   1759.42   1760.35   1761.27   1762.20   1763.13   1764.06   1764.99

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    60626. TO   120259.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
 277 KK   *       K25  *
          *            *
          **************

 278 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
```

```
                    IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

279 BA         SUBBASIN CHARACTERISTICS
                   TAREA         .42  SUBBASIN AREA

280 LG         GREEN AND AMPT LOSS RATE
                   STRTL         .35  STARTING LOSS
                     DTH         .23  MOISTURE DEFICIT
                    PSIF       10.02  WETTING FRONT SUCTION
                   XKSAT         .04  HYDRAULIC CONDUCTIVITY
                   RTIMP         .00  PERCENT IMPERVIOUS AREA

279 UI         INPUT UNITGRAPH,  29 ORDINATES,  VOLUME = 1.00
                     .0      36.1      49.2     128.0     200.9     265.0     316.4     342.0     341.2     313.2
                  255.3     203.6     164.6     131.6     104.8      83.3      67.2      55.3      40.2      35.8
                   24.7      24.7      16.0       8.8       8.8       8.8       8.8       8.8       8.8
                                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


             **************
             *            *
284 KK       *     CK13R  *        CNAME     13R
             *            *
             **************

285 KO         OUTPUT CONTROL VARIABLES
                   IPRNT           4  PRINT CONTROL
                   IPLOT           0  PLOT CONTROL
                   QSCAL          0.  HYDROGRAPH PLOT SCALE
                   IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                    IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT        .083  TIME INTERVAL IN HOURS


286 HC         HYDROGRAPH COMBINATION
                   ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


             **************
             *            *
287 KK       *       K33  *
             *            *
             **************

288 KO         OUTPUT CONTROL VARIABLES
                   IPRNT           4  PRINT CONTROL
                   IPLOT           0  PLOT CONTROL
                   QSCAL          0.  HYDROGRAPH PLOT SCALE
                   IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                    IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                   ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                   ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                  TIMINT        .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

289 BA         SUBBASIN CHARACTERISTICS
                   TAREA         .10  SUBBASIN AREA

290 LG         GREEN AND AMPT LOSS RATE
                   STRTL         .35  STARTING LOSS
                     DTH         .20  MOISTURE DEFICIT
                    PSIF       10.69  WETTING FRONT SUCTION
                   XKSAT         .03  HYDRAULIC CONDUCTIVITY
                   RTIMP       12.31  PERCENT IMPERVIOUS AREA

289 UI         INPUT UNITGRAPH,  20 ORDINATES,  VOLUME = 1.00
                     .0      15.8      62.6     108.7     158.2     100.3      77.9      60.5      43.0      34.3
                   23.8      18.0      13.4      10.1       7.5       5.8       2.9       2.9       2.9       2.9
                                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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256 RX        DISTANCE        .00     32.30     43.61     60.76     87.20    197.15    384.48    729.13
                                                                  ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.92      7.69     18.09     37.78     67.37    107.96    168.62    251.19    346.79
          OUTFLOW        .00     71.19    452.05   1228.57   3006.48   6304.68  12054.96  21167.78  33728.62  50297.46
        ELEVATION    1899.07   1900.83   1902.58   1904.34   1906.09   1907.85   1909.60   1911.36   1913.11   1914.87

          STORAGE     451.27    564.63    686.89    817.90    956.72   1103.16   1257.22   1418.90   1588.19   1765.11
          OUTFLOW   70455.03  94222.19 121665.50 153050.20 188494.00 227843.90 271172.80 318559.00 370083.90 425831.80
        ELEVATION    1916.62   1918.38   1920.13   1921.89   1923.64   1925.40   1927.15   1928.91   1930.66   1932.42

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    12055. TO   425832.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
258 KK    *      K29   *
          *            *
          **************

259 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

260 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .23  SUBBASIN AREA

261 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .29  MOISTURE DEFICIT
                       PSIF        8.26  WETTING FRONT SUCTION
                      XKSAT         .07  HYDRAULIC CONDUCTIVITY
                      RTIMP       25.25  PERCENT IMPERVIOUS AREA

260 UI          INPUT UNITGRAPH,  29 ORDINATES,  VOLUME = 1.00
                         .0      24.6      53.1     120.2     170.1     220.4     253.4     159.1     134.3     114.2
                       95.4      74.9      60.7      53.7      41.6      31.4      27.4      22.1      18.9      13.8
                       12.0      12.0       5.9       4.7       4.7       4.7       4.7       4.7       4.7
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
265 KK    *     CK14L  *        CNAME     14R
          *            *
          **************

266 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

267 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
268 KK    *      CK14  *        CNAME     14R
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```
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 245 BA          SUBBASIN CHARACTERISTICS
                    TAREA        .28  SUBBASIN AREA

 246 LG          GREEN AND AMPT LOSS RATE
                    STRTL        .35  STARTING LOSS
                      DTH        .33  MOISTURE DEFICIT
                     PSIF       7.30  WETTING FRONT SUCTION
                    XKSAT        .10  HYDRAULIC CONDUCTIVITY
                    RTIMP      30.00  PERCENT IMPERVIOUS AREA

 245 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                      .0      93.7     350.8     575.8     358.4     256.4     166.3     117.0      72.3      50.4
                    32.0      22.7      11.4      11.4      11.4

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 249 KK     *      CK16  *        CNAME     16R
            *            *
            **************

 250 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


 251 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 252 KK     *       16R  *        CNAME     16C
            *            *
            **************

 253 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

 254 RS          STORAGE ROUTING
                    NSTPS          2  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

 255 RC          NORMAL DEPTH CHANNEL
                     ANL       .070  LEFT OVERBANK N-VALUE
                    ANCH       .050  MAIN CHANNEL N-VALUE
                     ANR       .070  RIGHT OVERBANK N-VALUE
                   RLNTH      6151.  REACH LENGTH
                     SEL      .0381  ENERGY SLOPE
                   ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 257 RY        ELEVATION   1921.10   1910.00   1905.20   1899.07   1903.45   1908.85   1912.74   1932.42
```

```
                **************
                *            *
 294 KK         *       K34  *
                *            *
                **************

 295 KO            OUTPUT CONTROL VARIABLES
                        IPRNT           4  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                         IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .083  TIME INTERVAL IN HOURS


                 SUBBASIN RUNOFF DATA

 296 BA            SUBBASIN CHARACTERISTICS
                        TAREA         .22  SUBBASIN AREA

 297 LG            GREEN AND AMPT LOSS RATE
                        STRTL         .35  STARTING LOSS
                          DTH         .27  MOISTURE DEFICIT
                         PSIF        8.95  WETTING FRONT SUCTION
                        XKSAT         .06  HYDRAULIC CONDUCTIVITY
                        RTIMP       14.42  PERCENT IMPERVIOUS AREA

 296 UI            INPUT UNITGRAPH,  16 ORDINATES,  VOLUME = 1.00
                          .0      66.0     250.9     440.8     303.4     215.6     149.2     104.3      67.3      47.7
                        32.3      22.4      13.4       8.8       8.8       8.8
                                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                **************
                *            *
 300 KK         *      CK18  *        CNAME     18R
                *            *
                **************

 301 KO            OUTPUT CONTROL VARIABLES
                        IPRNT           4  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .083  TIME INTERVAL IN HOURS


 302 HC            HYDROGRAPH COMBINATION
                        ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                   ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


                **************
                *            *
 303 KK         *       18R  *        CNAME     18C
                *            *
                **************

 304 KO            OUTPUT CONTROL VARIABLES
                        IPRNT           4  PRINT CONTROL
                        IPLOT           0  PLOT CONTROL
                        QSCAL          0.  HYDROGRAPH PLOT SCALE
                        IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                         IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                        ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                        ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                       TIMINT        .083  TIME INTERVAL IN HOURS


                HYDROGRAPH ROUTING DATA

 305 RS            STORAGE ROUTING
                        NSTPS           2  NUMBER OF SUBREACHES
                         ITYP        FLOW  TYPE OF INITIAL CONDITION
                       RSVRIC       -1.00  INITIAL CONDITION
                            X         .00 WORKING R AND D COEFFICIENT

 306 RC            NORMAL DEPTH CHANNEL
```

```
                    ANL        .070  LEFT OVERBANK N-VALUE
                   ANCH        .050  MAIN CHANNEL N-VALUE
                    ANR        .070  RIGHT OVERBANK N-VALUE
                  RLNTH       4072.  REACH LENGTH
                    SEL       .0127  ENERGY SLOPE
                  ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                        --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
308 RY      ELEVATION  1742.00   1742.07   1741.69   1738.41   1741.17   1744.18   1747.55   1750.98
307 RX      DISTANCE        .00    140.94    230.23    305.36    384.39    532.87    668.87    829.87

                                                  ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

        STORAGE        .00      1.05      4.22      9.49     16.87     26.66     47.58     76.05    106.54    139.03
        OUTFLOW        .00     18.11    115.00    339.06    730.20   1294.76   2296.87   3942.33   6154.09   9036.41
      ELEVATION    1738.41   1739.07   1739.73   1740.39   1741.06   1741.72   1742.38   1743.04   1743.70   1744.36

        STORAGE     173.27    209.17    246.71    285.90    326.75    369.43    414.04    460.56    509.00    559.36
        OUTFLOW   12786.76  17093.31  21952.65  27363.26  33322.40  39826.35  46896.60  54540.05  62764.04  71576.73
      ELEVATION    1745.03   1745.69   1746.35   1747.01   1747.67   1748.33   1749.00   1749.66   1750.32   1750.98

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    27363. TO    71577.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
309 KK    *       K32  *
          *            *
          **************

310 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

311 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .21  SUBBASIN AREA

312 LG          GREEN AND AMPT LOSS RATE
                     STRTL         .35  STARTING LOSS
                       DTH         .24  MOISTURE DEFICIT
                      PSIF        9.88  WETTING FRONT SUCTION
                     XKSAT         .04  HYDRAULIC CONDUCTIVITY
                     RTIMP         .35  PERCENT IMPERVIOUS AREA

311 UI          INPUT UNITGRAPH,  25 ORDINATES,  VOLUME = 1.00
                       .0      26.7      78.3     159.0     215.9     278.5     171.8     140.2     115.1      90.8
                     67.3      58.3      41.7      32.6      27.3      20.4      15.6      13.1      11.4       5.1
                      5.1       5.1       5.1       5.1       5.1

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
316 KK    *     CK13L  *        CNAME     13R
          *            *
          **************

317 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS

318 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
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                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
319 KK      *      CK13  *        CNAME     13R
            *            *
            **************

320 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

321 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
322 KK      *       13R  *        CNAME     13C
            *            *
            **************

323 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

324 RS          STORAGE ROUTING
                      NSTPS           1  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

325 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2593.  REACH LENGTH
                        SEL       .0071  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
327 RY        ELEVATION   1707.90   1703.92   1701.03   1697.00   1696.95   1705.40   1713.82   1714.96
326 RX        DISTANCE        .00    238.17    396.39    499.25    649.86    779.91    896.53   1012.06
                                                                    ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      9.30     21.01     34.90     50.99     69.64     91.97    118.05    147.94    181.84
          OUTFLOW        .00    346.41   1189.09   2494.70   4284.34   6770.23   9928.89  13749.40  18281.47  23635.02
        ELEVATION    1696.95   1697.90   1698.85   1699.79   1700.74   1701.69   1702.64   1703.59   1704.53   1705.48

          STORAGE     219.71    261.52    306.96    353.62    401.03    449.17    498.06    547.68    598.15    652.54
          OUTFLOW   30344.70  37978.83  46811.55  56900.25  67930.43  79876.27  92717.66 106438.50 120833.40 135807.60
        ELEVATION    1706.43   1707.38   1708.32   1709.27   1710.22   1711.17   1712.12   1713.06   1714.01   1714.96

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
328 KK      *       K19  *
            *            *
            **************
```

```
329 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

330 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .11  SUBBASIN AREA

331 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .25  MOISTURE DEFICIT
                       PSIF        9.77  WETTING FRONT SUCTION
                      XKSAT         .05  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

330 UI          INPUT UNITGRAPH,  28 ORDINATES,  VOLUME = 1.00
                        .0      12.4      29.5      64.2      89.1     122.2     110.9      75.0      63.3      53.2
                      43.0      32.9      28.4      22.9      17.1      14.3      11.8       9.5       7.2       6.1
                       6.1       2.8       2.4       2.4       2.4       2.4       2.4       2.4
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
335 KK        *     CK12R  *        CNAME     12R
              *            *
              **************

336 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


337 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


              **************
              *            *
338 KK        *       K24  *
              *            *
              **************

339 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

340 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .32  SUBBASIN AREA

341 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .34  MOISTURE DEFICIT
                       PSIF        7.07  WETTING FRONT SUCTION
                      XKSAT        -.11  HYDRAULIC CONDUCTIVITY
                      RTIMP       26.88  PERCENT IMPERVIOUS AREA

340 UI          INPUT UNITGRAPH,  15 ORDINATES,  VOLUME = 1.00
                        .0     104.4     394.1     659.2     418.5     300.2     196.6     138.4      86.8      60.5
                      39.3      29.3      13.1      13.1      13.1
```

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                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 344 KK     *       K23  *
            *            *
            **************

 345 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

               SUBBASIN RUNOFF DATA

 346 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .08  SUBBASIN AREA

 347 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .33  MOISTURE DEFICIT
                       PSIF        7.30  WETTING FRONT SUCTION
                      XKSAT         .10  HYDRAULIC CONDUCTIVITY
                      RTIMP       30.00  PERCENT IMPERVIOUS AREA

 346 UI          INPUT UNITGRAPH,  11 ORDINATES,  VOLUME = 1.00
                        .0      62.0     214.8     146.9      86.3      48.9      26.4      14.9       7.9       4.7
                      4.7
                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 350 KK     *      CK21  *        CNAME     21R
            *            *
            **************

 351 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 352 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                    ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 353 KK     *       21R  *        CNAME     21C
            *            *
            **************

 354 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

               HYDROGRAPH ROUTING DATA

 355 RS          STORAGE ROUTING
```

```
                    NSTPS          3  NUMBER OF SUBREACHES
                     ITYP       FLOW  TYPE OF INITIAL CONDITION
                   RSVRIC      -1.00  INITIAL CONDITION
                        X        .00 WORKING R AND D COEFFICIENT

356 RC          NORMAL DEPTH CHANNEL
                      ANL       .070  LEFT OVERBANK N-VALUE
                     ANCH       .050  MAIN CHANNEL N-VALUE
                      ANR       .070  RIGHT OVERBANK N-VALUE
                    RLNTH      8569.  REACH LENGTH
                      SEL      .0216  ENERGY SLOPE
                    ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
358 RY        ELEVATION   1870.50   1864.00   1860.04   1857.37   1850.30   1856.07   1869.46   1906.45
357 RX        DISTANCE        .00    158.07    256.10    307.50    425.11    526.75    641.28    764.28

                                                          ***

                                      COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00     29.42    117.67    257.08    446.25    692.19    994.75   1352.02   1730.64   2114.96
          OUTFLOW        .00    848.79   5431.29  16335.98  36016.21  64951.12 103293.30 152648.40 214767.00 286627.60
        ELEVATION    1850.30   1853.26   1856.21   1859.17   1862.12   1865.08   1868.03   1870.99   1873.94   1876.90

          STORAGE    2505.00   2900.75   3302.21   3709.38   4122.27   4540.87   4965.18   5395.21   5830.95   6272.40
          OUTFLOW  367688.20 457562.40 555958.30 662647.30 777445.50 900202.901030795.001169118.001315084.001468620.00
        ELEVATION    1879.85   1882.81   1885.76   1888.72   1891.67   1894.63   1897.58   1900.54   1903.49   1906.45

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    16336. TO  1468620.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
359 KK    *       K22  *
          *            *
          **************

360 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          4  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       .083  TIME INTERVAL IN HOURS

             SUBBASIN RUNOFF DATA

361 BA          SUBBASIN CHARACTERISTICS
                     TAREA        .63  SUBBASIN AREA

362 LG          GREEN AND AMPT LOSS RATE
                     STRTL        .35  STARTING LOSS
                       DTH        .30  MOISTURE DEFICIT
                      PSIF       8.12  WETTING FRONT SUCTION
                     XKSAT        .08  HYDRAULIC CONDUCTIVITY
                     RTIMP      18.23  PERCENT IMPERVIOUS AREA

361 UI          INPUT UNITGRAPH,  34 ORDINATES,  VOLUME = 1.00
                        .0      58.8      97.3     228.2     361.5     441.7     579.3     585.0     382.9     329.9
                     287.3     247.8     209.1     166.8     141.9     128.3     102.4      80.0      70.0      64.4
                      45.6      45.1      31.7      28.8      28.8      21.0      11.3      11.3      11.3      11.3
                      11.3      11.3      11.3      11.3

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
367 KK    *      CK20  *          CNAME     20R
          *            *
          **************

368 KO          OUTPUT CONTROL VARIABLES
                     IPRNT          4  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
```

```
                    ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT         .083  TIME INTERVAL IN HOURS

369 HC          HYDROGRAPH COMBINATION
                    ICOMP            2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
370 KK    *       20R  *        CNAME     20C
          *            *
          **************

371 KO          OUTPUT CONTROL VARIABLES
                    IPRNT            4  PRINT CONTROL
                    IPLOT            0  PLOT CONTROL
                    QSCAL           0.  HYDROGRAPH PLOT SCALE
                    IPNCH            0  PUNCH COMPUTED HYDROGRAPH
                     IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT         .083  TIME INTERVAL IN HOURS

            HYDROGRAPH ROUTING DATA

372 RS          STORAGE ROUTING
                   NSTPS            1  NUMBER OF SUBREACHES
                    ITYP         FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC        -1.00  INITIAL CONDITION
                       X          .00 WORKING R AND D COEFFICIENT

373 RC          NORMAL DEPTH CHANNEL
                     ANL         .070  LEFT OVERBANK N-VALUE
                    ANCH         .050  MAIN CHANNEL N-VALUE
                     ANR         .070  RIGHT OVERBANK N-VALUE
                   RLNTH        1189.  REACH LENGTH
                     SEL        .0127  ENERGY SLOPE
                   ELMAX           .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                     CROSS-SECTION DATA
                         --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
375 RY        ELEVATION   1722.00   1720.14   1719.86   1718.88   1719.90   1719.74   1719.34   1724.65
374 RX        DISTANCE        .00     98.99    153.70    176.70    216.70    316.43    441.24    515.26
                                                                  ***

                                     COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .08       .41      1.63      4.12      7.10     10.26     13.59     17.08     20.74
          OUTFLOW        .00      2.76     19.04     71.70    260.99    606.78   1073.37   1652.14   2339.05   3132.02
        ELEVATION    1718.88   1719.18   1719.49   1719.79   1720.09   1720.40   1720.70   1721.01   1721.31   1721.61

          STORAGE      24.58     28.55     32.55     36.59     40.67     44.78     48.93     53.11     57.33     61.58
          OUTFLOW    4030.05   5062.19   6207.63   7451.67   8791.32  10224.11  11747.91  13360.93  15061.59  16848.65
        ELEVATION    1721.92   1722.22   1722.52   1722.83   1723.13   1723.44   1723.74   1724.04   1724.35   1724.65

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     6208. TO    16849.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

          **************
          *            *
376 KK    *       K21  *
          *            *
          **************

377 KO          OUTPUT CONTROL VARIABLES
                    IPRNT            4  PRINT CONTROL
                    IPLOT            0  PLOT CONTROL
                    QSCAL           0.  HYDROGRAPH PLOT SCALE
                    IPNCH            1  PUNCH COMPUTED HYDROGRAPH
                     IOUT           22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1            1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2          200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT         .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

378 BA          SUBBASIN CHARACTERISTICS
                    TAREA          .13  SUBBASIN AREA
```

```
379 LG          GREEN AND AMPT LOSS RATE
                      STRTL          .35  STARTING LOSS
                        DTH          .33  MOISTURE DEFICIT
                       PSIF         7.36  WETTING FRONT SUCTION
                      XKSAT          .10  HYDRAULIC CONDUCTIVITY
                      RTIMP          .17  PERCENT IMPERVIOUS AREA

378 UI          INPUT UNITGRAPH,  22 ORDINATES,  VOLUME = 1.00
                        .0      18.8      63.8     123.2     174.7     164.9     108.3      88.1      69.0      50.4
                      41.8      29.9      22.7      18.2      14.4       9.4       9.2       5.1       3.6       3.6
                       3.6       3.6
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
383 KK      *      CK19  *        CNAME     19R
            *            *
            **************

384 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

385 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
386 KK      *       19R  *        CNAME     19C
            *            *
            **************

387 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

                HYDROGRAPH ROUTING DATA

388 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

389 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       2871.  REACH LENGTH
                        SEL       .0106  ENERGY SLOPE
                      ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                          CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
391 RY        ELEVATION   1710.80   1706.21   1704.90   1699.10   1699.74   1707.72   1707.80   1707.80
390 RX        DISTANCE        .00    223.89    292.04    376.47    438.47    492.47    574.47    678.92
                                                                  ***

                                          COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      1.39      4.53      8.21     12.41     17.15     22.43     28.23     34.57     41.44
          OUTFLOW        .00     29.56    184.53    450.35    824.66   1311.29   1915.81   2644.51   3503.93   4500.69
        ELEVATION    1699.10   1699.72   1700.33   1700.95   1701.56   1702.18   1702.80   1703.41   1704.03   1704.64

          STORAGE      49.01     57.96     68.37     80.19     93.39    114.72    138.01    162.53    188.26    215.21
          OUTFLOW    5737.83   7213.30   8886.35  10776.38  12899.85  15600.61  18795.30  22434.88  26507.32  31009.74
```

```
          ELEVATION    1705.26   1705.87   1706.49   1707.11   1707.72   1708.34   1708.95   1709.57   1710.19   1710.80

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     4501. TO    31010.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
 392 KK    *       K20  *
           *            *
           **************

 393 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

 394 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .18  SUBBASIN AREA

 395 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .18  MOISTURE DEFICIT
                       PSIF       11.39  WETTING FRONT SUCTION
                      XKSAT         .02  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

 394 UI          INPUT UNITGRAPH,  27 ORDINATES,  VOLUME = 1.00
                        .0      21.7      53.8     115.6     159.0     226.1     176.8     127.8     107.8      89.8
                      71.4      54.8      47.8      37.2      27.7      23.8      18.2      16.3      10.6      10.6
                       8.3       4.2       4.2       4.2       4.2       4.2       4.2
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
 399 KK    *     CK12L  *        CNAME     12R
           *            *
           **************

 400 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS


 401 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
 402 KK    *      CK12  *        CNAME     12R
           *            *
           **************

 403 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS
```

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404 HC          HYDROGRAPH COMBINATION
                     ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
405 KK     *       12R  *        CNAME     12C
           *            *
           **************

406 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


              HYDROGRAPH ROUTING DATA

407 RS          STORAGE ROUTING
                     NSTPS           2  NUMBER OF SUBREACHES
                      ITYP        FLOW  TYPE OF INITIAL CONDITION
                    RSVRIC       -1.00  INITIAL CONDITION
                         X         .00 WORKING R AND D COEFFICIENT

408 RC          NORMAL DEPTH CHANNEL
                       ANL        .070  LEFT OVERBANK N-VALUE
                      ANCH        .050  MAIN CHANNEL N-VALUE
                       ANR        .070  RIGHT OVERBANK N-VALUE
                     RLNTH       4131.  REACH LENGTH
                       SEL       .0057  ENERGY SLOPE
                     ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                         CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
410 RY        ELEVATION   1950.90   1920.02   1906.06   1889.62   1874.16   1881.93   1893.97   1910.23
409 RX        DISTANCE        .00     87.00    126.00    175.00    253.00    311.00    379.00    457.64

                                                    ***

                                         COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      9.68     38.69     85.45    148.70    226.39    316.68    419.07    533.54    659.92
          OUTFLOW        .00    363.59   2340.92   7132.98  14901.74  26328.66  41261.43  59831.21  82555.93 112264.60
        ELEVATION    1874.16   1878.20   1882.24   1886.28   1890.32   1894.35   1898.39   1902.43   1906.47   1910.51

          STORAGE     793.85    932.11   1074.70   1221.64   1372.94   1528.60   1688.62   1852.99   2021.72   2194.81
          OUTFLOW  148120.80 188367.50 232926.10 281744.60 334787.90 392032.00 453463.30 519075.50 588868.90 662848.30
        ELEVATION    1914.55   1918.59   1922.63   1926.67   1930.71   1934.74   1938.78   1942.82   1946.86   1950.90


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    14902. TO    662848.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


           **************
           *            *
411 KK     *       K15  *
           *            *
           **************

412 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           4  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                      IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT        .083  TIME INTERVAL IN HOURS


              SUBBASIN RUNOFF DATA

413 BA          SUBBASIN CHARACTERISTICS
                     TAREA         .23  SUBBASIN AREA

414 LG          GREEN AND AMPT LOSS RATE
```

```
                    STRTL          .35  STARTING LOSS
                      DTH          .24  MOISTURE DEFICIT
                     PSIF         9.81  WETTING FRONT SUCTION
                    XKSAT          .04  HYDRAULIC CONDUCTIVITY
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

413 UI          INPUT UNITGRAPH,  27 ORDINATES,  VOLUME = 1.00
                      .0      21.7      34.8      84.7     132.0     170.9     197.8     207.8     196.8     166.0
                    131.1     103.0      81.8      63.4      49.6      39.4      32.2      23.0      18.8      14.8
                     14.2       5.3       5.3       5.3       5.3       5.3       5.3
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
418 KK      *       K17  *
            *            *
            **************

419 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

420 BA          SUBBASIN CHARACTERISTICS
                    TAREA          .16  SUBBASIN AREA

421 LG          GREEN AND AMPT LOSS RATE
                    STRTL          .35  STARTING LOSS
                      DTH          .17  MOISTURE DEFICIT
                     PSIF        11.68  WETTING FRONT SUCTION
                    XKSAT          .02  HYDRAULIC CONDUCTIVITY
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

420 UI          INPUT UNITGRAPH,  29 ORDINATES,  VOLUME = 1.00
                      .0      13.7      19.0      49.0      76.7     101.1     120.2     130.1     129.1     117.8
                     95.4      76.2      61.2      49.0      39.4      30.5      25.0      21.0      14.5      13.0
                      9.4       9.4       5.3       3.3       3.3       3.3       3.3       3.3       3.3
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
425 KK      *       K18  *
            *            *
            **************

426 KO          OUTPUT CONTROL VARIABLES
                    IPRNT           4  PRINT CONTROL
                    IPLOT           0  PLOT CONTROL
                    QSCAL          0.  HYDROGRAPH PLOT SCALE
                    IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                     IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

427 BA          SUBBASIN CHARACTERISTICS
                    TAREA          .13  SUBBASIN AREA

428 LG          GREEN AND AMPT LOSS RATE
                    STRTL          .35  STARTING LOSS
                      DTH          .18  MOISTURE DEFICIT
                     PSIF        11.56  WETTING FRONT SUCTION
                    XKSAT          .02  HYDRAULIC CONDUCTIVITY
                    RTIMP          .00  PERCENT IMPERVIOUS AREA

427 UI          INPUT UNITGRAPH,  22 ORDINATES,  VOLUME = 1.00
                      .0      14.9      36.3      78.7     114.4     137.0     140.3     122.3      91.9      67.9
                     50.5      36.9      27.5      20.5      15.4      10.2       9.5       3.6       3.6       3.6
                      3.6       3.6
                                                                  ***
```

```
*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
 432 KK     *     CK23   *        CNAME     23R
            *            *
            **************

 433 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

 434 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE

                                                          ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 435 KK     *      23R   *        CNAME     23C
            *            *
            **************

 436 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

             HYDROGRAPH ROUTING DATA

 437 RS          STORAGE ROUTING
                      NSTPS           2  NUMBER OF SUBREACHES
                       ITYP        FLOW  TYPE OF INITIAL CONDITION
                     RSVRIC       -1.00  INITIAL CONDITION
                          X         .00 WORKING R AND D COEFFICIENT

 438 RC          NORMAL DEPTH CHANNEL
                        ANL        .070  LEFT OVERBANK N-VALUE
                       ANCH        .050  MAIN CHANNEL N-VALUE
                        ANR        .070  RIGHT OVERBANK N-VALUE
                      RLNTH       4551.  REACH LENGTH
                        SEL       .0091  ENERGY SLOPE
                       ELMAX          .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
 440 RY        ELEVATION   1711.90   1708.89   1707.98   1708.00   1707.88   1709.00   1710.01   1711.14
 439 RX        DISTANCE        .00    188.22    282.03    356.92    455.00    557.65    631.98    724.74

                                                          ***

                                   COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      2.63      7.59     13.46     20.24     27.93     36.37     45.46     55.18     65.53
          OUTFLOW        .00     17.85     92.26    215.04    385.47    605.58    899.15   1254.74   1664.57   2129.22
        ELEVATION    1707.88   1708.09   1708.30   1708.51   1708.73   1708.94   1709.15   1709.36   1709.57   1709.78

          STORAGE      76.53     88.17    100.50    113.49    127.17    141.52    156.48    171.77    187.34    203.21
          OUTFLOW    2649.40   3225.40   3859.12   4551.78   5304.58   6118.73   7010.18   7974.38   9000.26  10087.30
        ELEVATION    1710.00   1710.21   1710.42   1710.63   1710.84   1711.05   1711.26   1711.48   1711.69   1711.90


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
 441 KK     *      K16   *
            *            *
            **************

 442 KO          OUTPUT CONTROL VARIABLES
```

```
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


             SUBBASIN RUNOFF DATA

443 BA          SUBBASIN CHARACTERISTICS
                      TAREA        .22  SUBBASIN AREA

444 LG          GREEN AND AMPT LOSS RATE
                     STRTL        .35  STARTING LOSS
                       DTH        .21  MOISTURE DEFICIT
                      PSIF      10.36  WETTING FRONT SUCTION
                     XKSAT        .03  HYDRAULIC CONDUCTIVITY
                     RTIMP        .00  PERCENT IMPERVIOUS AREA

443 UI          INPUT UNITGRAPH,  28 ORDINATES,  VOLUME = 1.00
                       .0      20.3      31.2      77.3     120.1     157.3     183.2     194.8     187.7     161.6
                    129.0     101.7      80.7      63.7      50.0      39.8      32.1      23.9      20.5      13.9
                     13.9       8.2       4.9       4.9       4.9       4.9       4.9       4.9
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
448 KK      *      CK22  *        CNAME     22R
            *            *
            **************

449 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


450 HC          HYDROGRAPH COMBINATION
                    ICOMP          2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
451 KK      *       22R  *        CNAME     22C
            *            *
            **************

452 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


             HYDROGRAPH ROUTING DATA

453 RS          STORAGE ROUTING
                   NSTPS          2  NUMBER OF SUBREACHES
                    ITYP       FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC      -1.00  INITIAL CONDITION
                       X        .00 WORKING R AND D COEFFICIENT

454 RC          NORMAL DEPTH CHANNEL
                     ANL       .070  LEFT OVERBANK N-VALUE
                    ANCH       .050  MAIN CHANNEL N-VALUE
                     ANR       .070  RIGHT OVERBANK N-VALUE
                   RLNTH      3227.  REACH LENGTH
                     SEL      .0078  ENERGY SLOPE
                   ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                      CROSS-SECTION DATA
```

```
                          --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
456 RY        ELEVATION   1950.90   1920.02   1906.06   1889.62   1874.16   1881.93   1893.97   1910.23
455 RX        DISTANCE        .00     87.00    126.00    175.00    253.00    311.00    379.00    457.64

                                                    ***

                                    COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00      7.56     30.23     66.76    116.18    176.88    247.42    327.41    416.85    515.59
          OUTFLOW        .00    425.33   2738.40   8344.12  17431.99  30799.15  48267.43  69990.27  96573.54 131326.60
        ELEVATION    1874.16   1878.20   1882.24   1886.28   1890.32   1894.35   1898.39   1902.43   1906.47   1910.51

          STORAGE     620.23    728.25    839.65    954.46   1072.67   1194.28   1319.30   1447.72   1579.55   1714.79
          OUTFLOW  173271.00 220351.30 272475.80 329583.50 391633.30 458597.20 530459.30 607212.10 688856.10 775396.80
        ELEVATION    1914.55   1918.59   1922.63   1926.67   1930.71   1934.74   1938.78   1942.82   1946.86   1950.90


*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN     2738. TO   775397.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
457 KK      *      CK3R  *        CNAME      3R
            *            *
            **************

458 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

459 HC          HYDROGRAPH COMBINATION
                      ICOMP           3  NUMBER OF HYDROGRAPHS TO COMBINE
                                                    ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
460 KK      *       CK3  *        CNAME      3R
            *            *
            **************

461 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

462 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                    ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


            **************
            *            *
463 KK      *         3R *        CNAME      3C
            *            *
            **************

464 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS
```

```
            HYDROGRAPH ROUTING DATA

465 RS        STORAGE ROUTING
                NSTPS          1  NUMBER OF SUBREACHES
                 ITYP       FLOW  TYPE OF INITIAL CONDITION
                RSVRIC      -1.00  INITIAL CONDITION
                     X        .00 WORKING R AND D COEFFICIENT

466 RC        NORMAL DEPTH CHANNEL
                  ANL       .070  LEFT OVERBANK N-VALUE
                 ANCH       .050  MAIN CHANNEL N-VALUE
                  ANR       .070  RIGHT OVERBANK N-VALUE
                RLNTH       111.  REACH LENGTH
                  SEL      .0156  ENERGY SLOPE
                ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                  CROSS-SECTION DATA
                      --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
468 RY      ELEVATION   1671.20   1669.03   1668.46   1667.98   1668.53   1668.14   1672.63   1673.18
467 RX      DISTANCE        .00    145.34    201.25    239.32    284.05    342.36    405.01    501.05

                                                  ***

                                  COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

        STORAGE        .00       .02       .09       .21       .35       .51       .68       .87      1.07      1.29
        OUTFLOW        .00      6.16     52.81    186.50    391.60    667.58   1011.85   1424.83   1907.55   2461.43
      ELEVATION    1667.98   1668.25   1668.53   1668.80   1669.07   1669.35   1669.62   1669.90   1670.17   1670.44

        STORAGE       1.52      1.77      2.04      2.31      2.58      2.86      3.14      3.42      3.72      4.05
        OUTFLOW    3088.05   3789.16   4580.97   5496.72   6487.35   7550.84   8685.53   9887.22  10981.58  12260.51
      ELEVATION    1670.72   1670.99   1671.26   1671.54   1671.81   1672.09   1672.36   1672.63   1672.91   1673.18

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN        0. TO    12261.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
469 KK    *       K35  *
          *            *
          **************

470 KO        OUTPUT CONTROL VARIABLES
                IPRNT          4  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE
                IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                 IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
               TIMINT       .083  TIME INTERVAL IN HOURS

            SUBBASIN RUNOFF DATA

471 BA        SUBBASIN CHARACTERISTICS
                TAREA        .30  SUBBASIN AREA

472 LG        GREEN AND AMPT LOSS RATE
                STRTL        .35  STARTING LOSS
                  DTH        .16  MOISTURE DEFICIT
                 PSIF      12.00  WETTING FRONT SUCTION
                XKSAT        .02  HYDRAULIC CONDUCTIVITY
                RTIMP        .00  PERCENT IMPERVIOUS AREA

471 UI        INPUT UNITGRAPH,  41 ORDINATES,  VOLUME = 1.00
                   .0      18.3      18.3      33.4      62.9      90.4     114.9     136.7     156.9     167.4
                175.2     174.1     165.9     150.1     129.0     108.7      93.7      80.8      68.5      58.7
                 50.9      41.5      35.8      31.7      28.0      21.5      19.4      17.0      12.5      12.5
                 12.5       7.6       4.4       4.4       4.4       4.4       4.4       4.4       4.4       4.4
                  4.4

                                                  ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
478 KK    *        K2  *
          *            *
          **************

479 KO        OUTPUT CONTROL VARIABLES
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```
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          1  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


            SUBBASIN RUNOFF DATA

480 BA        SUBBASIN CHARACTERISTICS
                    TAREA        .00  SUBBASIN AREA

481 LG        GREEN AND AMPT LOSS RATE
                    STRTL        .35  STARTING LOSS
                      DTH        .36  MOISTURE DEFICIT
                     PSIF       6.80  WETTING FRONT SUCTION
                    XKSAT        .13  HYDRAULIC CONDUCTIVITY
                    RTIMP        .00  PERCENT IMPERVIOUS AREA

480 UI        INPUT UNITGRAPH,   2 ORDINATES,  VOLUME = 1.05
                     .0       7.3

                                                    ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
483 KK    *       CK2  *        CNAME      2R
          *            *
          **************

484 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


485 HC        HYDROGRAPH COMBINATION
                    ICOMP          3  NUMBER OF HYDROGRAPHS TO COMBINE

                                                    ***


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***


          **************
          *            *
486 KK    *        2R  *        CNAME      2C
          *            *
          **************

487 KO        OUTPUT CONTROL VARIABLES
                    IPRNT          4  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT       .083  TIME INTERVAL IN HOURS


           HYDROGRAPH ROUTING DATA

488 RS        STORAGE ROUTING
                   NSTPS          1  NUMBER OF SUBREACHES
                    ITYP       FLOW  TYPE OF INITIAL CONDITION
                  RSVRIC      -1.00  INITIAL CONDITION
                       X        .00 WORKING R AND D COEFFICIENT

489 RC        NORMAL DEPTH CHANNEL
                     ANL       .070  LEFT OVERBANK N-VALUE
                    ANCH       .050  MAIN CHANNEL N-VALUE
                     ANR       .070  RIGHT OVERBANK N-VALUE
                   RLNTH      1038.  REACH LENGTH
                     SEL      .0052  ENERGY SLOPE
                   ELMAX         .0  MAX. ELEV. FOR STORAGE/OUTFLOW CALCULATION

                                   CROSS-SECTION DATA
                      --- LEFT OVERBANK --- + ------ MAIN CHANNEL ------- + --- RIGHT OVERBANK ---
491 RY       ELEVATION   1660.00   1653.35   1652.00   1650.94   1651.55   1653.00   1654.01   1659.84
```

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490 RX        DISTANCE        .00     74.00    166.00    221.08    280.08    500.10    783.07    994.37
                                                                  ***

                                        COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

          STORAGE        .00       .40      1.69      4.09      7.68     12.63     19.28     27.31     35.72     44.38
          OUTFLOW        .00     13.96     88.18    285.38    643.81   1280.10   2228.18   3496.43   5072.46   6917.96
        ELEVATION    1650.94   1651.42   1651.89   1652.37   1652.85   1653.32   1653.80   1654.28   1654.75   1655.23

          STORAGE      53.31     62.49     71.92     81.62     91.56    101.77    112.23    122.95    133.93    145.15
          OUTFLOW    9020.10  11370.54  13963.66  16795.54  19863.51  23165.78  26701.22  30469.25  34469.67  38785.67
        ELEVATION    1655.71   1656.18   1656.66   1657.14   1657.62   1658.09   1658.57   1659.05   1659.52   1660.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN    13964. TO    38786.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
492 KK      *        K1  *
            *            *
            **************

493 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           1  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

              SUBBASIN RUNOFF DATA

494 BA          SUBBASIN CHARACTERISTICS
                      TAREA         .08  SUBBASIN AREA

495 LG          GREEN AND AMPT LOSS RATE
                      STRTL         .35  STARTING LOSS
                        DTH         .36  MOISTURE DEFICIT
                       PSIF        6.80  WETTING FRONT SUCTION
                      XKSAT         .13  HYDRAULIC CONDUCTIVITY
                      RTIMP         .00  PERCENT IMPERVIOUS AREA

494 UI          INPUT UNITGRAPH,  10 ORDINATES,  VOLUME = 1.00
                        .0      41.4     149.9     186.3     112.1      56.5      28.8      15.1       5.0       5.0
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
498 KK      *       CK1  *        CNAME      1R
            *            *
            **************

499 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           4  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT        .083  TIME INTERVAL IN HOURS

500 HC          HYDROGRAPH COMBINATION
                      ICOMP           2  NUMBER OF HYDROGRAPHS TO COMBINE
                                                                  ***

*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***

            **************
            *            *
501 KK      *         1R *        CNAME      1C
            *            *
            **************
```

```
502 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          4  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE
                      IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                       IOUT         22  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2        200  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       .083  TIME INTERVAL IN HOURS

              HYDROGRAPH ROUTING DATA

503 RN          NO ROUTING

                                                  ***
1
                                              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 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	K13	157.	12.25	28.	10.	10.	.08		
+	HYDROGRAPH AT	K14	553.	12.33	98.	37.	37.	.30		
+	2 COMBINED AT	CK24	706.	12.33	125.	47.	47.	.38		
+	ROUTED TO	24R	566.	12.58	125.	46.	46.	.38		
+	HYDROGRAPH AT	K9	219.	12.17	22.	8.	8.	.08		
+	ROUTED TO	9R	144.	12.25	21.	8.	8.	.08		
+	HYDROGRAPH AT	K8	115.	12.17	13.	5.	5.	.04		
+	2 COMBINED AT	CK8	235.	12.17	35.	13.	13.	.12		
+	ROUTED TO	8R	218.	12.33	35.	13.	13.	.12		
+	HYDROGRAPH AT	K11	637.	12.25	79.	31.	31.	.31		
+	HYDROGRAPH AT	K12	310.	12.17	32.	13.	13.	.12		
+	2 COMBINED AT	CK11	928.	12.17	110.	44.	44.	.43		
+	ROUTED TO	11R	735.	12.42	110.	44.	44.	.43		
+	HYDROGRAPH AT	K10	700.	12.33	103.	39.	39.	.42		
+	2 COMBINED AT	CK10	1395.	12.33	212.	83.	83.	.85		
+	ROUTED TO	10R	1162.	12.50	212.	82.	82.	.85		
+	HYDROGRAPH AT	K7	120.	12.17	10.	4.	4.	.07		
+	3 COMBINED AT	CK7	1372.	12.50	255.	98.	98.	1.04		
+	ROUTED TO	7R	1341.	12.58	255.	98.	98.	1.04		
+	HYDROGRAPH AT	K6	195.	12.17	21.	7.	7.	.08		
+	2 COMBINED AT	CK6	1393.	12.50	275.	105.	105.	1.12		
+	ROUTED TO	6R	1347.	12.67	275.	104.	104.	1.12		
+	HYDROGRAPH AT	K5	124.	12.17	11.	4.	4.	.05		

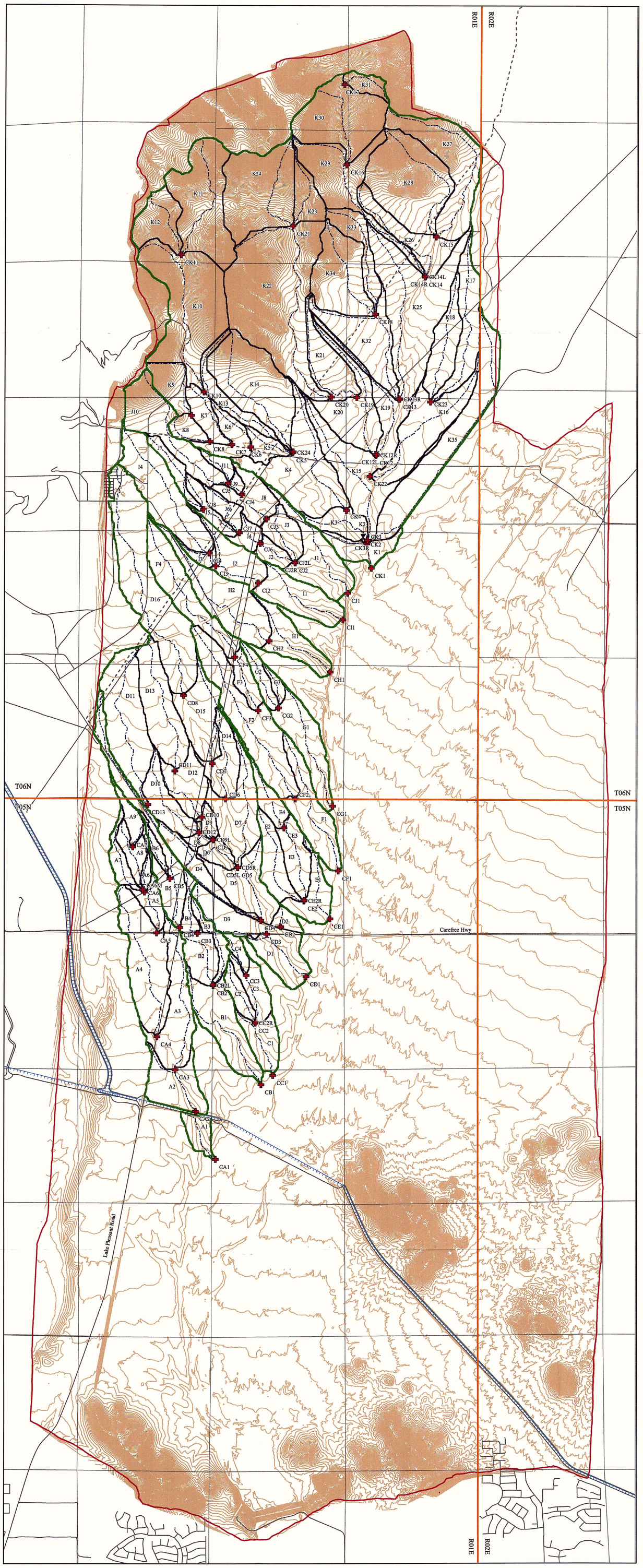
+	2 COMBINED AT	CK5	1365.	12.67	285.	108.	108.	1.17
+	ROUTED TO	5R	1266.	12.83	285.	108.	108.	1.17
+	HYDROGRAPH AT	K4	551.	12.33	75.	27.	27.	.30
+	3 COMBINED AT	CK4	1951.	12.75	479.	179.	179.	1.86
+	ROUTED TO	4R	1904.	12.83	478.	178.	178.	1.86
+	HYDROGRAPH AT	K3	151.	12.25	13.	5.	5.	.07
+	2 COMBINED AT	CK3L	1915.	12.83	491.	183.	183.	1.93
+	HYDROGRAPH AT	K27	509.	12.25	82.	31.	31.	.27
+	HYDROGRAPH AT	K28	826.	12.17	100.	38.	38.	.35
+	2 COMBINED AT	CK15	1273.	12.25	180.	68.	68.	.62
+	ROUTED TO	15R	1182.	12.25	180.	68.	68.	.62
+	HYDROGRAPH AT	K26	278.	12.25	44.	16.	16.	.13
+	2 COMBINED AT	CK14R	1454.	12.25	223.	84.	84.	.75
+	HYDROGRAPH AT	K31	126.	12.08	11.	5.	5.	.04
+	ROUTED TO	17R	118.	12.17	11.	5.	5.	.04
+	HYDROGRAPH AT	K30	651.	12.17	73.	29.	29.	.28
+	2 COMBINED AT	CK16	766.	12.17	84.	34.	34.	.32
+	ROUTED TO	16R	647.	12.33	84.	33.	33.	.32
+	HYDROGRAPH AT	K29	368.	12.33	62.	24.	24.	.23
+	2 COMBINED AT	CK14L	1009.	12.33	145.	57.	57.	.54
+	2 COMBINED AT	CK14	2422.	12.33	365.	141.	141.	1.29
+	ROUTED TO	14R	1977.	12.50	364.	139.	139.	1.29
+	HYDROGRAPH AT	K25	623.	12.50	121.	44.	44.	.42
+	2 COMBINED AT	CK13R	2587.	12.50	482.	182.	182.	1.72
+	HYDROGRAPH AT	K33	204.	12.25	31.	12.	12.	.10
+	HYDROGRAPH AT	K34	522.	12.17	62.	24.	24.	.22
+	2 COMBINED AT	CK18	713.	12.17	92.	35.	35.	.32
+	ROUTED TO	18R	566.	12.42	92.	35.	35.	.32
+	HYDROGRAPH AT	K32	374.	12.33	58.	21.	21.	.21
+	2 COMBINED AT	CK13L	905.	12.33	149.	55.	55.	.53
+	2 COMBINED AT	CK13	3375.	12.50	628.	236.	236.	2.24
+	ROUTED TO	13R	3150.	12.58	626.	234.	234.	2.24

+	HYDROGRAPH AT	K19	184.	12.33	30.	11.	11.	.11
+	2 COMBINED AT	CK12R	3272.	12.58	655.	245.	245.	2.35
+	HYDROGRAPH AT	K24	741.	12.17	81.	32.	32.	.32
+	HYDROGRAPH AT	K23	215.	12.17	21.	9.	9.	.08
+	2 COMBINED AT	CK21	952.	12.17	102.	41.	41.	.40
+	ROUTED TO	21R	613.	12.50	102.	41.	41.	.40
+	HYDROGRAPH AT	K22	912.	12.42	163.	63.	63.	.63
+	2 COMBINED AT	CK20	1488.	12.50	263.	102.	102.	1.03
+	ROUTED TO	20R	1442.	12.50	263.	102.	102.	1.03
+	HYDROGRAPH AT	K21	243.	12.25	29.	11.	11.	.13
+	2 COMBINED AT	CK19	1594.	12.50	292.	112.	112.	1.16
+	ROUTED TO	19R	1539.	12.67	291.	112.	112.	1.16
+	HYDROGRAPH AT	K20	329.	12.33	59.	22.	22.	.18
+	2 COMBINED AT	CK12L	1755.	12.58	349.	133.	133.	1.34
+	2 COMBINED AT	CK12	4996.	12.58	997.	375.	375.	3.69
+	ROUTED TO	12R	4856.	12.75	995.	373.	373.	3.69
+	HYDROGRAPH AT	K15	363.	12.50	65.	23.	23.	.23
+	HYDROGRAPH AT	K17	244.	12.50	52.	19.	19.	.16
+	HYDROGRAPH AT	K18	238.	12.33	42.	15.	15.	.13
+	2 COMBINED AT	CK23	469.	12.42	93.	34.	34.	.29
+	ROUTED TO	23R	332.	12.92	89.	32.	32.	.29
+	HYDROGRAPH AT	K16	349.	12.50	67.	24.	24.	.22
+	2 COMBINED AT	CK22	592.	12.67	156.	56.	56.	.51
+	ROUTED TO	22R	579.	12.75	155.	56.	56.	.51
+	3 COMBINED AT	CK3R	5670.	12.75	1207.	450.	450.	4.44
+	2 COMBINED AT	CK3	7510.	12.75	1687.	629.	629.	6.37
+	ROUTED TO	3R	7520.	12.75	1687.	629.	629.	6.37
+	HYDROGRAPH AT	K35	362.	12.75	100.	37.	37.	.30
+	HYDROGRAPH AT	K2	3.	12.08	0.	0.	0.	.00
+	3 COMBINED AT	CK2	7869.	12.75	1783.	664.	664.	6.67
+	ROUTED TO	2R	7769.	12.83	1780.	662.	662.	6.67
	HYDROGRAPH AT							

+	K1	207.	12.17	16.	6.	6.	.08
2 COMBINED AT							
+	CK1	7775.	12.83	1795.	667.	667.	6.75
ROUTED TO							
+	1R	7775.	12.83	1795.	667.	667.	6.75

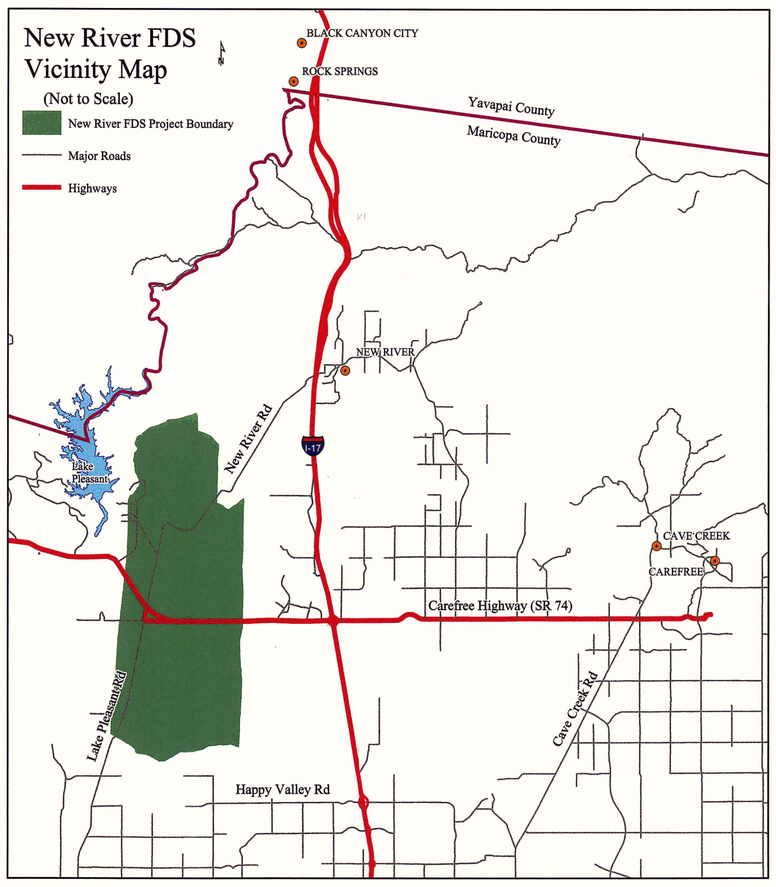
*** NORMAL END OF HEC-1 ***

New River West FDS Drainage Basin Map



LEGEND

- New River FDS Project Boundary
- Drainage Basins
- A1 Drainage Subbasins
- Flow Paths
- CA2 Outlet Points
- Roads
- Contour Lines
- Powerlines



N

0 500 1,000 2,000
Feet

Scale: 1" = 2000'

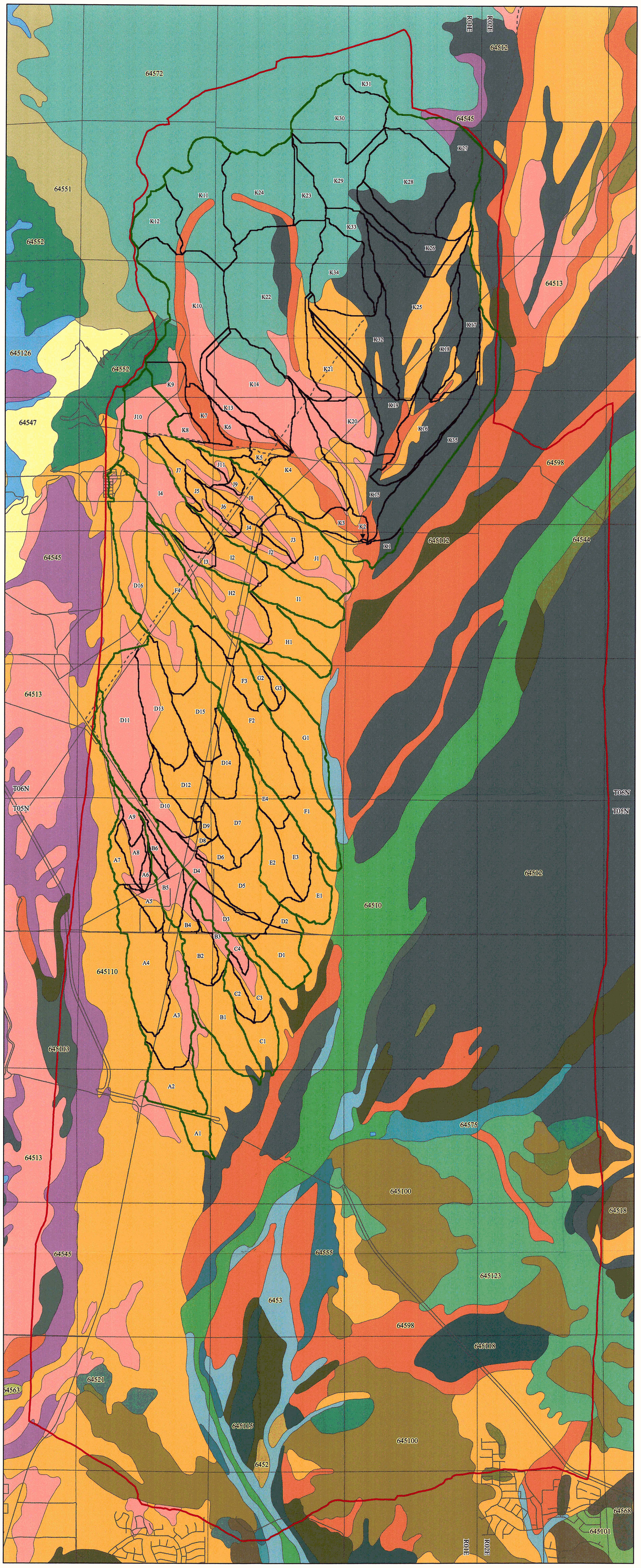
Horizontal Scale:
NAD83 State Plane
AZ Central
Vertical Scale:
NAVD88

Data Source:
FCDMC
ALRIS

MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
Date: 06-09-04
PM: MR
Checked By: MM
Cartography: DG

P:\New_River_FDS\GIS\mxds\Exhibit_A.mxd

Exhibit A



New River West FDS: Soils Map

LEGEND

- New River FDS Project Boundary
- Drainage Basins
- Drainage Subbasins
- PLSS Sections
- PLSS Township and Range Lines
- Roads
- Powerlines

SCS Soils - SOIL_LID

- 6452 Antho gravelly sandy loams (2)
- 6453 Antho-Carrizo Maripo complex (3)
- 64510 Brios-Carrizo complex (10)
- 64512 Carefree cobbly clay loam (12)
- 64513 Carefree-Beardsley complex (13)
- 64518 Cherriono-Rock outcrop complex (18)
- 64521 Cipriano very gravelly loam (21)
- 64544 Ebon very gravelly loam (44)
- 64545 Ebon very gravelly loam (45)
- 64547 Ebon-Gunsight-Cipriano association (47)
- 64551 Gachado-Lomitas complex (51)
- 64552 Gachado-Lomitas-Rock outcrop complex (52)
- 64555 Gilman loams (55)
- 64563 Gran-Wickenburg-Rock outcrop complex (63)
- 64568 Gunsight-Cipriano complex (68)
- 64572 Lehmans-Rock outcrop complex (72)
- 64575 Mohall loam (75)
- 64598 Pinamt-Tremant complex (98)
- 645100 Quilotosa-Vaiva-Rock outcrop complex (100)
- 645101 Rillito loam (101)
- 645110 Suncity-Cipriano complex (110)
- 645112 Tremant gravelly sandy loams (112)
- 645113 Tremant gravelly loams (113)
- 645115 Tremant-Antho complex (115)
- 645118 Tremant-Rillito complex (118)
- 645123 Vaiva very gravelly loam (123)
- 0 (Water)

N

0 1,000 2,000
Feet

Scale = 1" = 2,000'

Horizontal Scale:
NAD83 State Plane
AZ Centreal
Vertical Scale:
NAVD88

Data Source:
FCDMC

MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
Date: 06-09-04
PM: MR
Checked By: MM
Cartography: DG

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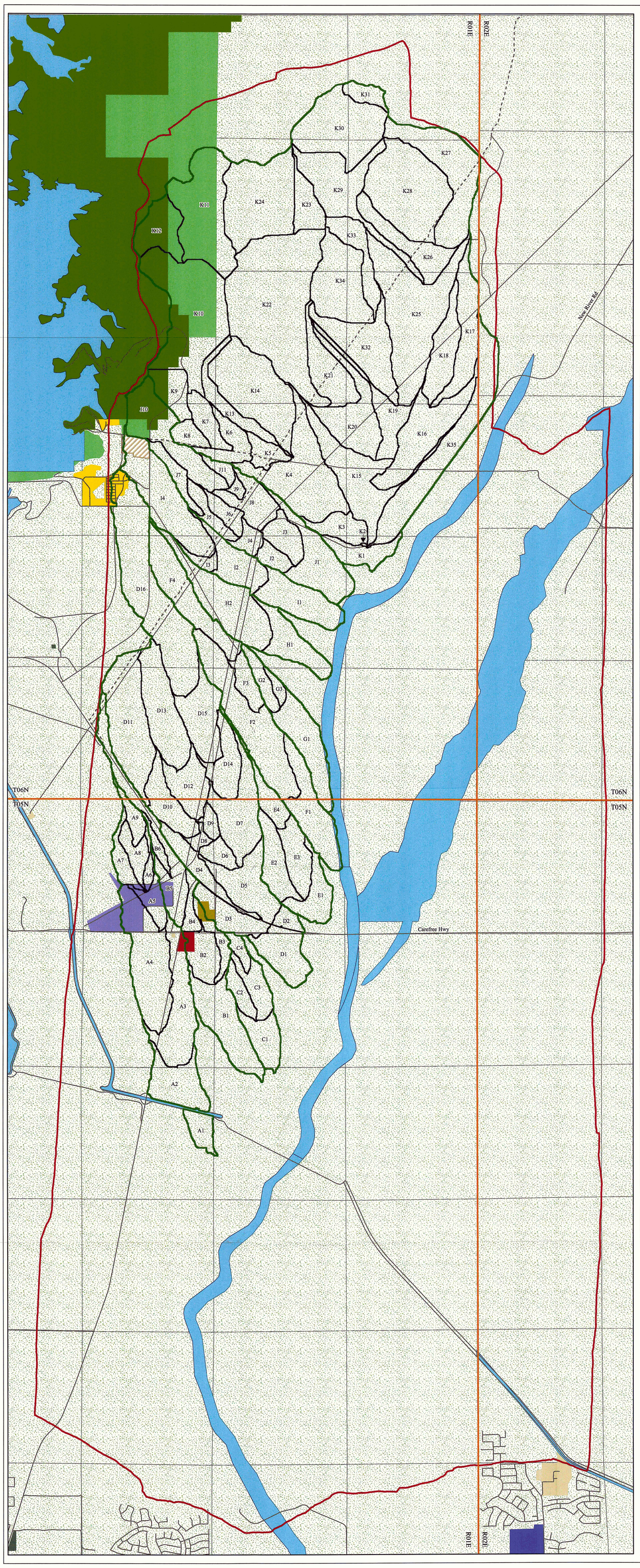
Exhibit B



New River West FDS Landuse Map

LEGEND

- New River FDS Project Boundary
- Drainag Basins
- A1 Drainage Subbasins
- PLSS Sections
- PLSS Township and Range Lines
- Roads
- Powerlines

MAG Landuse - LUCODE

- 120 Estate Residential (<= 1/5 du per acre)
- 220 Neighborhood Commercial (50,000 to 100,000 ft^2)
- 320 Industrial
- 510 Tourist and Visitor Accommodations (Hotels, Motels, and Resorts)
- 550 Public Facilities (Includes community centers, power sub-stations, librarires)
- 570 Other Employment - Low (Proving grounds and landfills)
- 620 Airports (Includes public use airports)
- 710 Active Open Space (Includes parks)
- 730 Passive Open Space (Includes mountain preserves and washes)
- 740 Water
- 750 Agriculture
- 900 Vacant

N

0 1,000 2,000
Feet

Scale 1" = 2,000'

URS

Horizontal Scale:
NAD83 State Plane
AZ Central
Vertical Scale:
NAVD88

Source Data:
FCDMC

MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
Date: 06-09-04
PM: MR
Checked By: MM
Cartography: DG

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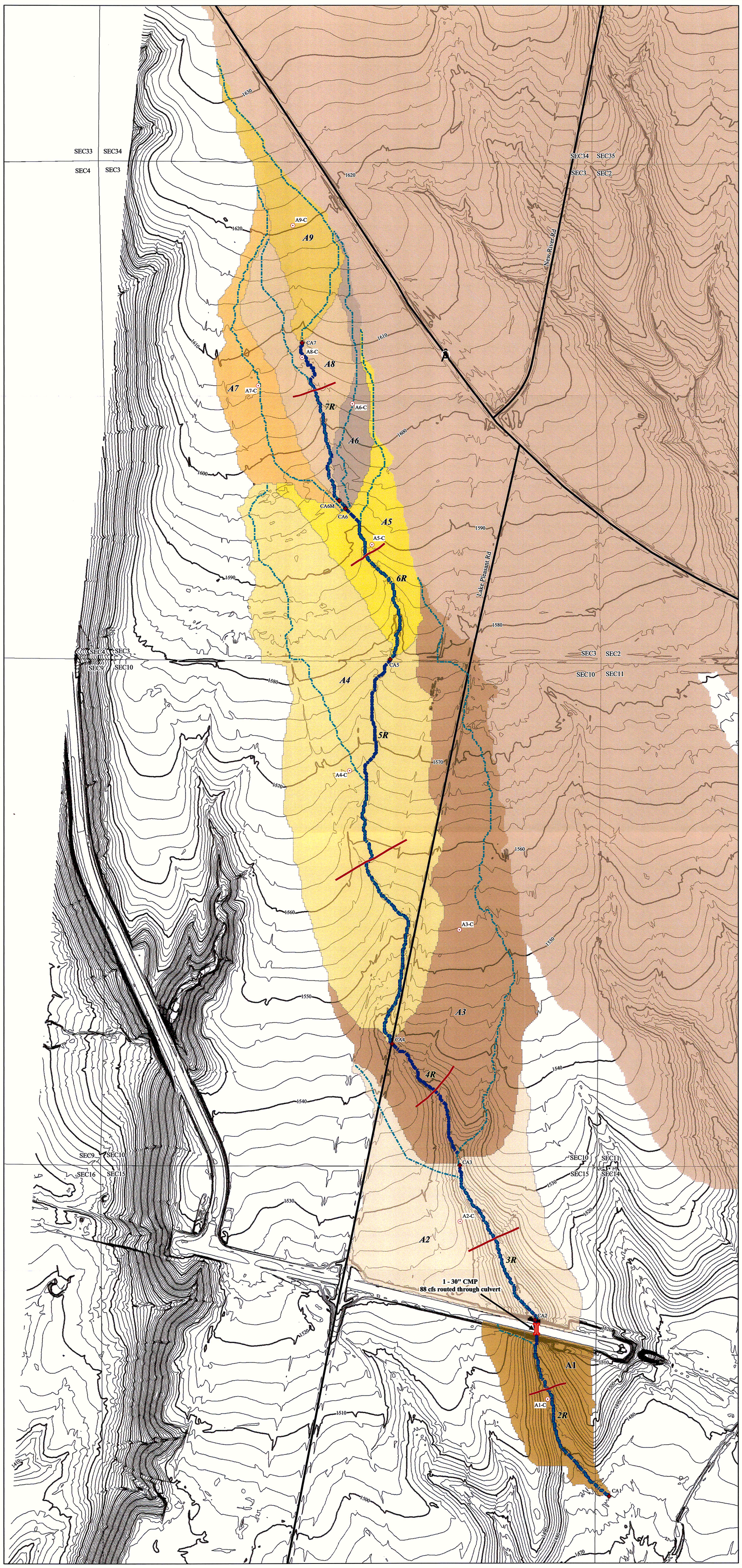
Exhibit C

New River West FDS
Appendix D.6.A
Basin A
Lag Path &
Routing Reach Map



LEGEND

- Culvert Crossing Location
- Section Lines
- Major Roads
- 2 FT Contour Lines
- 10 FT Contour Lines
- Basin A Lag Path
- 2R Basin A Routing Reaches
- Basin A Reach Route Cross Sections
- A1-C Basin A Centroids
- CA1 Basin A Concentration Points
- All Other Basins

Basin A Sub-basin IDs

- A1
- A2
- A3
- A4
- A5
- A6
- A7
- A8
- A9

N

0 250 500
Feet

Scale: 1" = 500'

Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD 29

Data Sources:
ALRIS
MCFCD

Date: 06-09-04
MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
PM: M.R.
Checked By: M.M.
Cartography: D.G.

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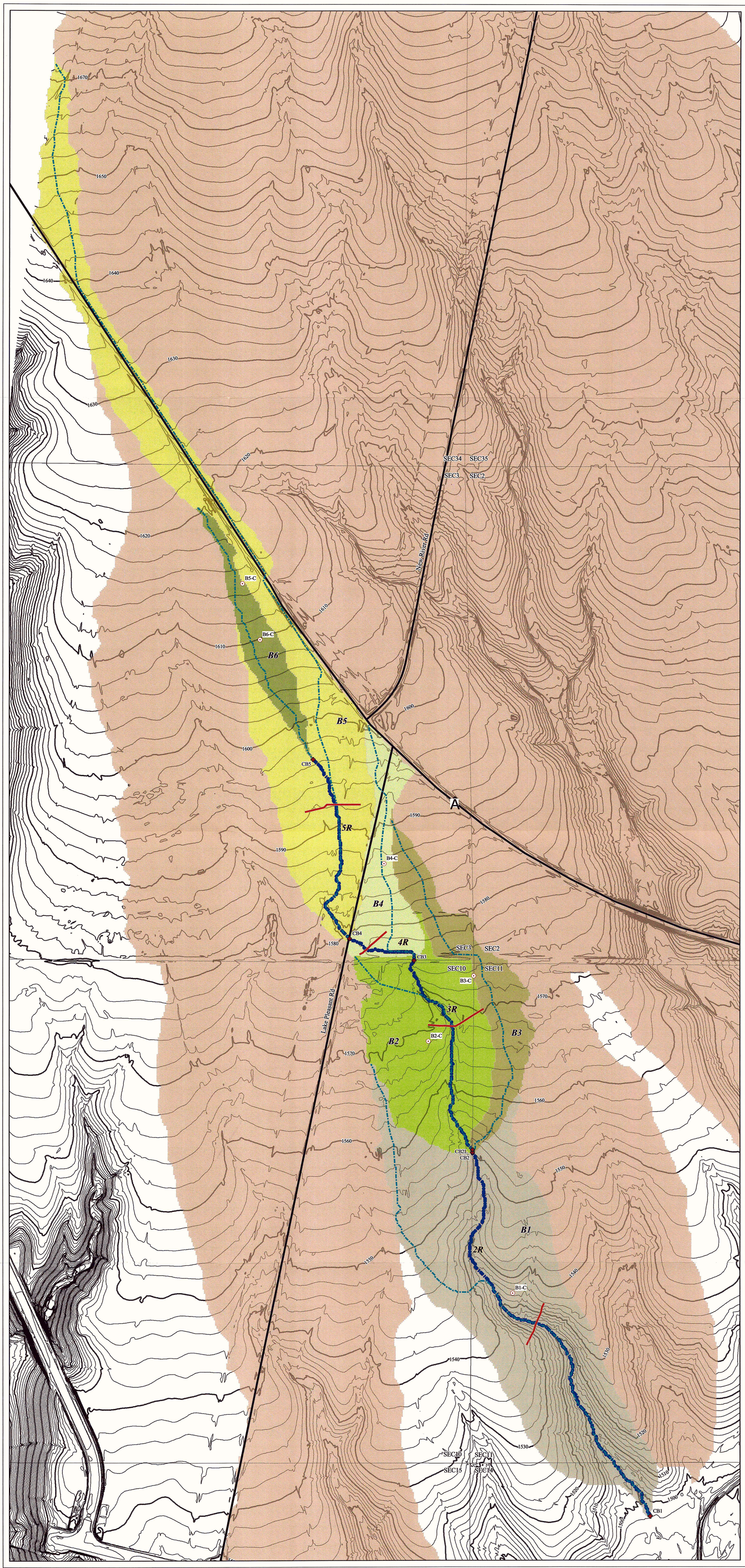
New River West FDS
Appendix D.6.B
Basin B
Lag Path &
Routing Reach Map



LEGEND

- Section Lines
- Major Roads
- Basin B Lag Path
- Basin B Routing Reaches
- Basin B Reach Route Cross Sections
- Basin B Centroids
- Basin B Outlet Points
- All Other Basins

Basin B Subbasin IDs

- B1
- B2
- B3
- B4
- B5
- B6

0 250 500
Feet

Scale: 1" = 500'

Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD 29

Data Sources:
ALRIS
MCFCD

Date: 06-09-04
MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
PM: M.R.
Checked By: M.M.
Cartography: D.G.

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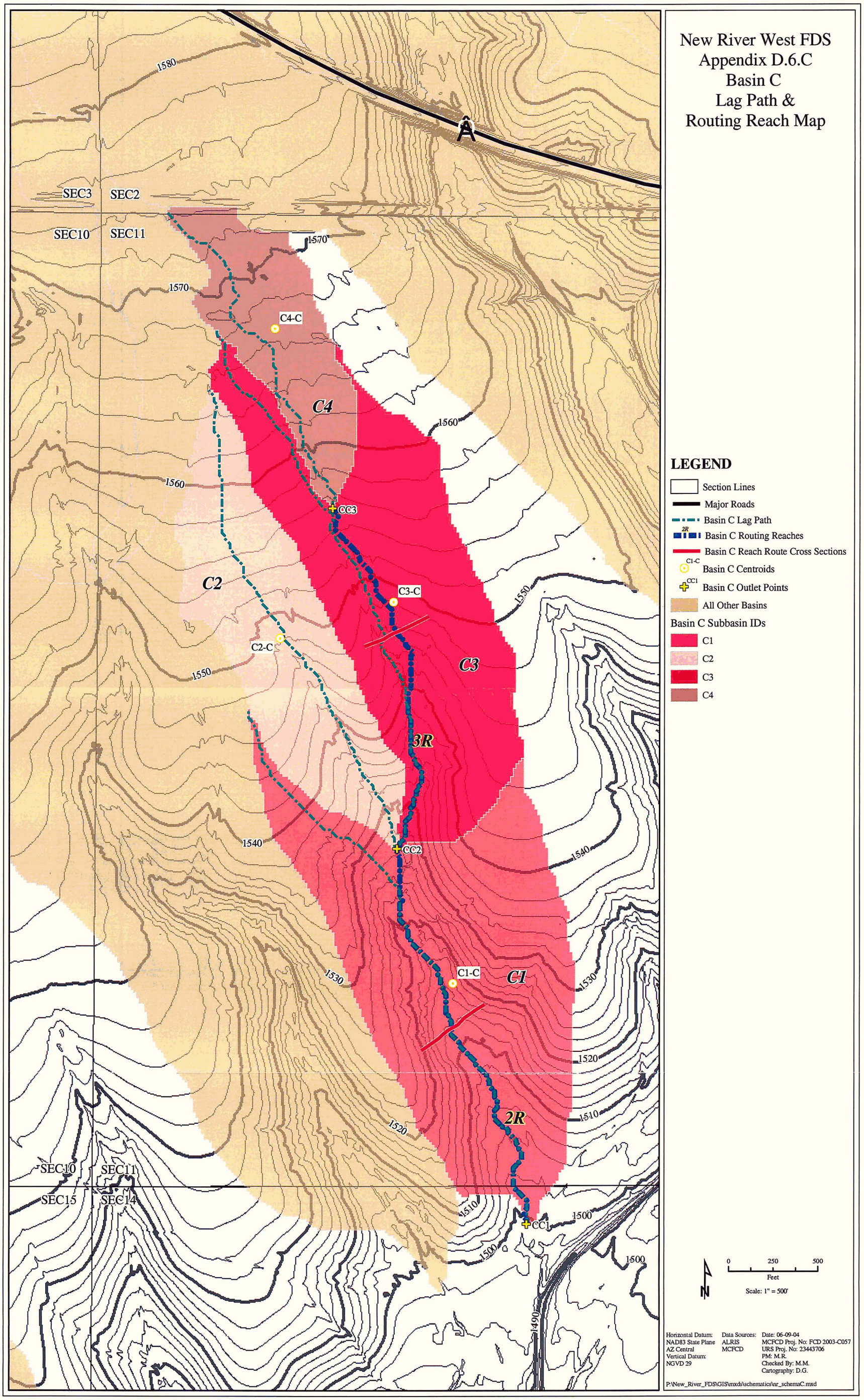
New River West FDS
Appendix D.6.C
Basin C
Lag Path &
Routing Reach Map
LEGEND
Section Lines
Major Roads
Basin C Lag Path
Basin C Routing Reaches
Basin C Reach Route Cross Sections
Basin C Centroids
Basin C Outlet Points
All Other Basins
Basin C Subbasin IDs
C1
C2
C3
C4
SEC3
SEC2
SEC10
SEC11
SEC15
SEC14
C4-C
C3-C
C2-C
C1-C
CC1
CC2
CC3
C4
C2
C3
3R
C1
2R
1580
1570
1560
1550
1540
1530
1520
1510
1500
1490
0
250
500
Feet
Scale: 1" = 500'
Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD 29
Data Sources:
ALRIS
MCFCD
Date: 06-09-04
MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
PM: M.R.
Checked By: M.M.
Cartography: D.G.
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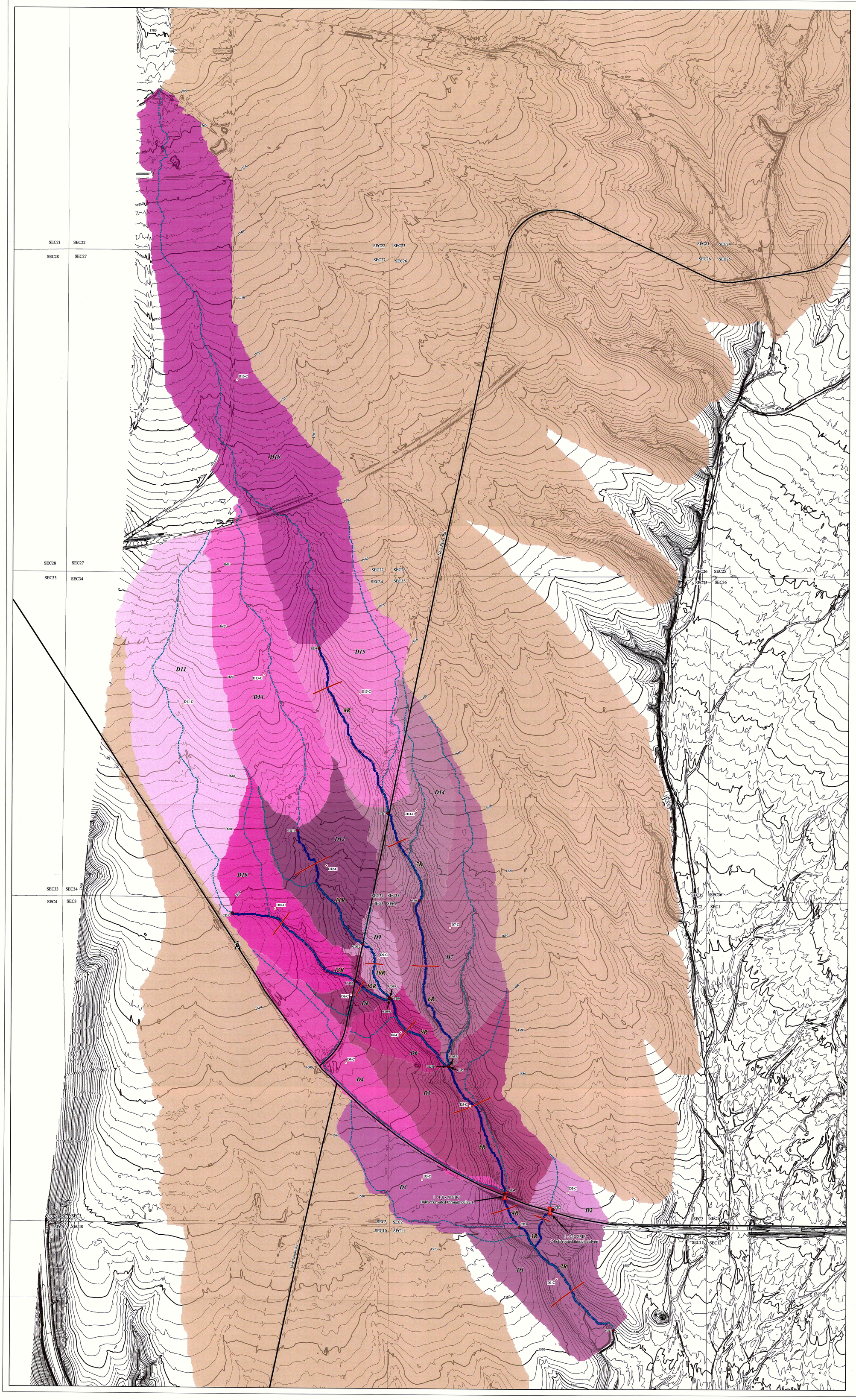

New River West FDS
Appendix D.6.D
Basin D
Lag Path &
Routing Reach Map

LEGEND

- Culvert Crossing Locations
- Section Lines
- Major Roads
- Basin D Lag Path
- Basin D Routing Reaches
- Basin D Reach Route Cross Sections
- Basin D Centroids
- Basin D Outlet Points
- All Other Basins

Basin D Subbasin IDs

- D1
- D2
- D3
- D4
- D5
- D6
- D7
- D8
- D9
- D10
- D11
- D12
- D13
- D14
- D15
- D16

0 250 500
Feet
Scale: 1" = 500'

Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD 29

Data Sources:
ALRIS
MCFCD

Date: 06-09-04
MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
PM: M.R.
Checked By: M.M.
Cartography: D.G.

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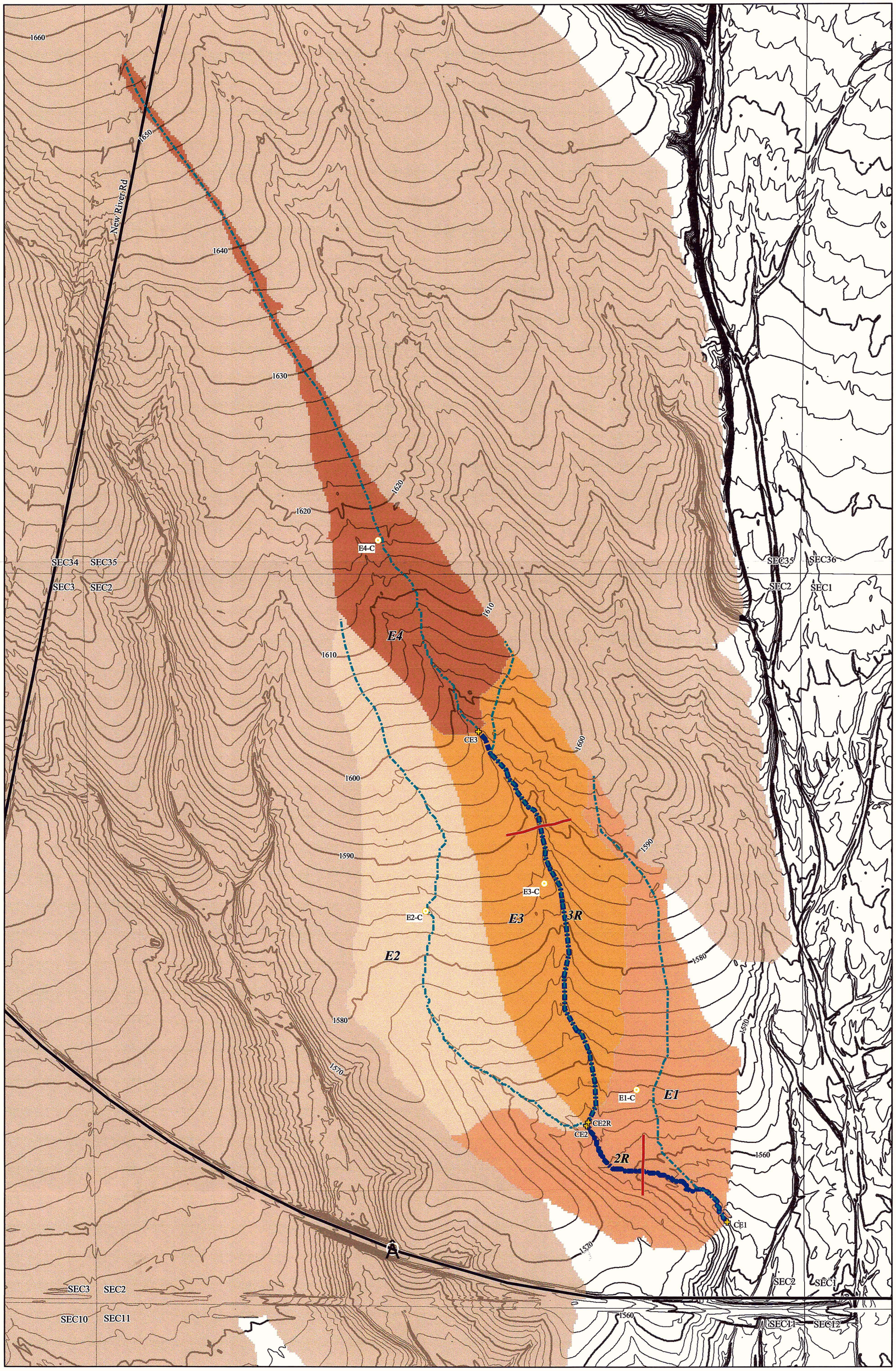

New River West FDS
Appendix D.6.E
Basin E
Lag Path & Routing Reach Map

LEGEND

- Section Lines
- Major Roads
- Basin E Lag Path
- Basin E Routing Reaches
- Basin E Reach Route Cross Sections
- Basin E Centroids
- Basin E Outlet Points
- All Other Basins

Basin E Subbasin IDs

- E1
- E2
- E3
- E4

N

0 125 250 500
Feet
Scale: 1" = 500'

Horizontal Datum:	Data Sources:	Date: 06-09-04
NAD83 State Plane	ALRIS	MCFCD Proj. No: FCD 2003-C057
AZ Central	MCFCD	URS Proj. No: 23443706
Vertical Datum:		PM: M.R.
NGVD 29		Checked By: M.M.
		Cartography: D.G.

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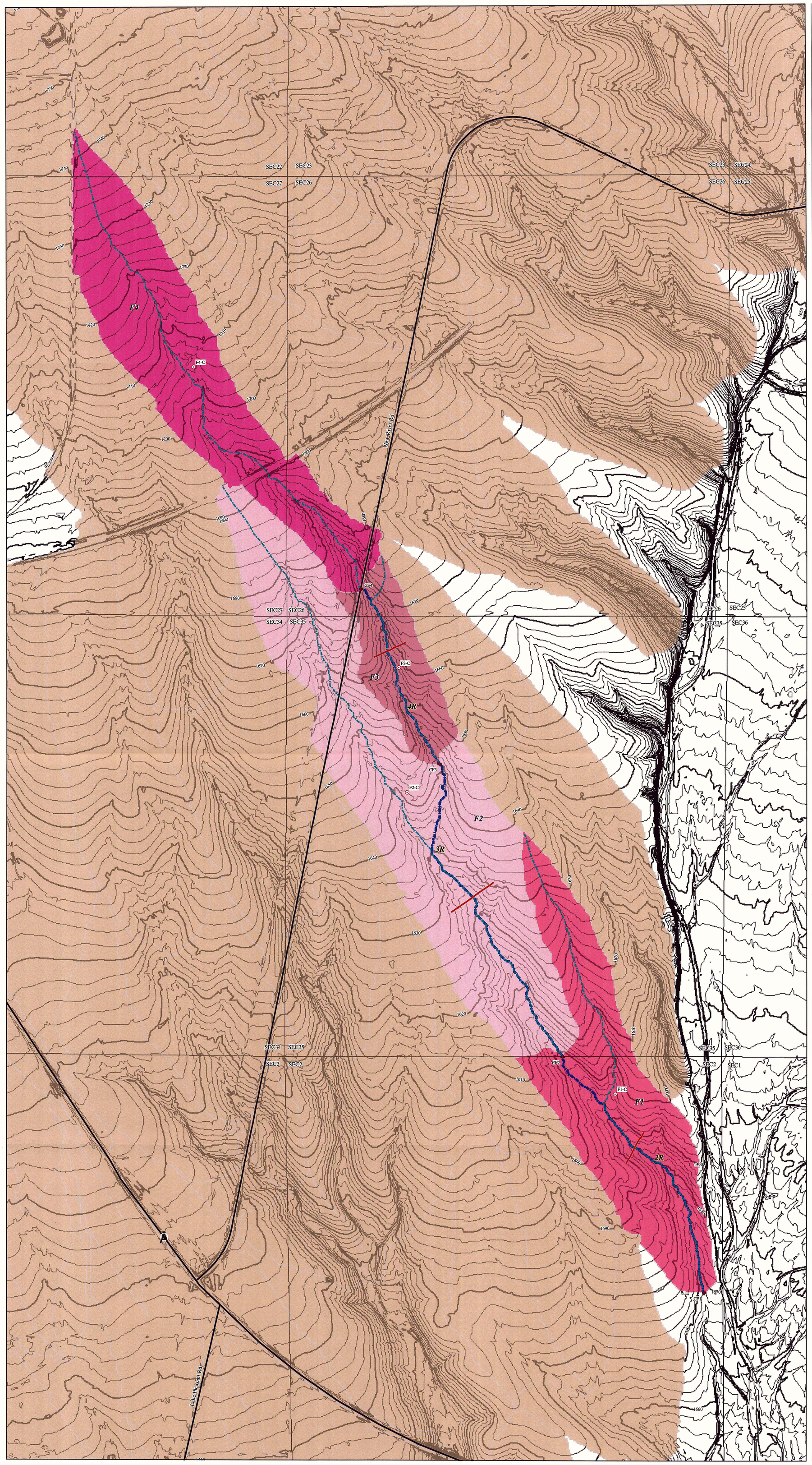

New River West FDS
Appendix D.6.F
Basin F
Lag Path & Routing Reach Map

LEGEND

- Section Lines
- Major Roads
- Basin F
- 2R Basin F, route
- Basin F Reach Route Cross Sections
- F1-C Basin F Centroids
- CF1 Basin F Outlet Points
- All Other Basins

Basin F Subbasin IDs

- F1
- F2
- F3
- F4

N

0 250 500
Feet

Scale: 1" = 500'

Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD 29

Data Sources:
ALRIS
MCFCD

Date: 06-09-04
MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
PM: M.R.
Checked By: M.M.
Cartography: D.G.

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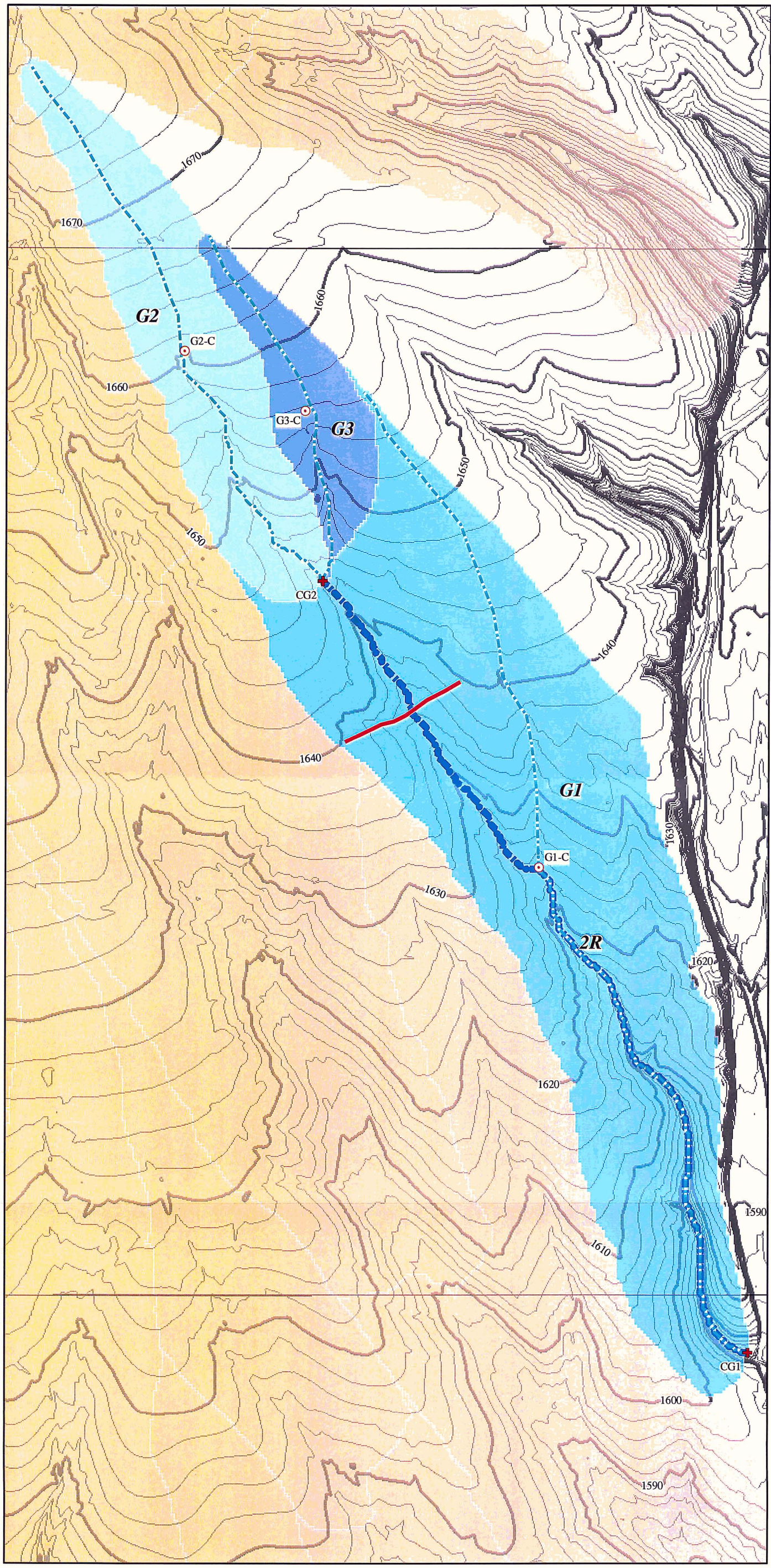
New River West FDS
Appendix D.6.G
Basin G
Lag Path &
Routing Reach Map



LEGEND

- Section Lines
- 2 FT Contour Lines
- 10 FT Contour Lines
- Basin G Lag Path
- 2R Basin G Routing Reaches
- Basin G Reach Route Cross Sections
- G1-C Basin G Centroids
- CG1 Basin G Outlet Points
- All Other Basins

Basin G Subbasin IDs

- G1
- G2
- G3

0 250 500
Feet
Scale: 1" = 500'

Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD 29

Data Sources:
ALRIS
MCFCD

Date: 06-09-04
MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
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Checked By: M.M.
Cartography: D.G.

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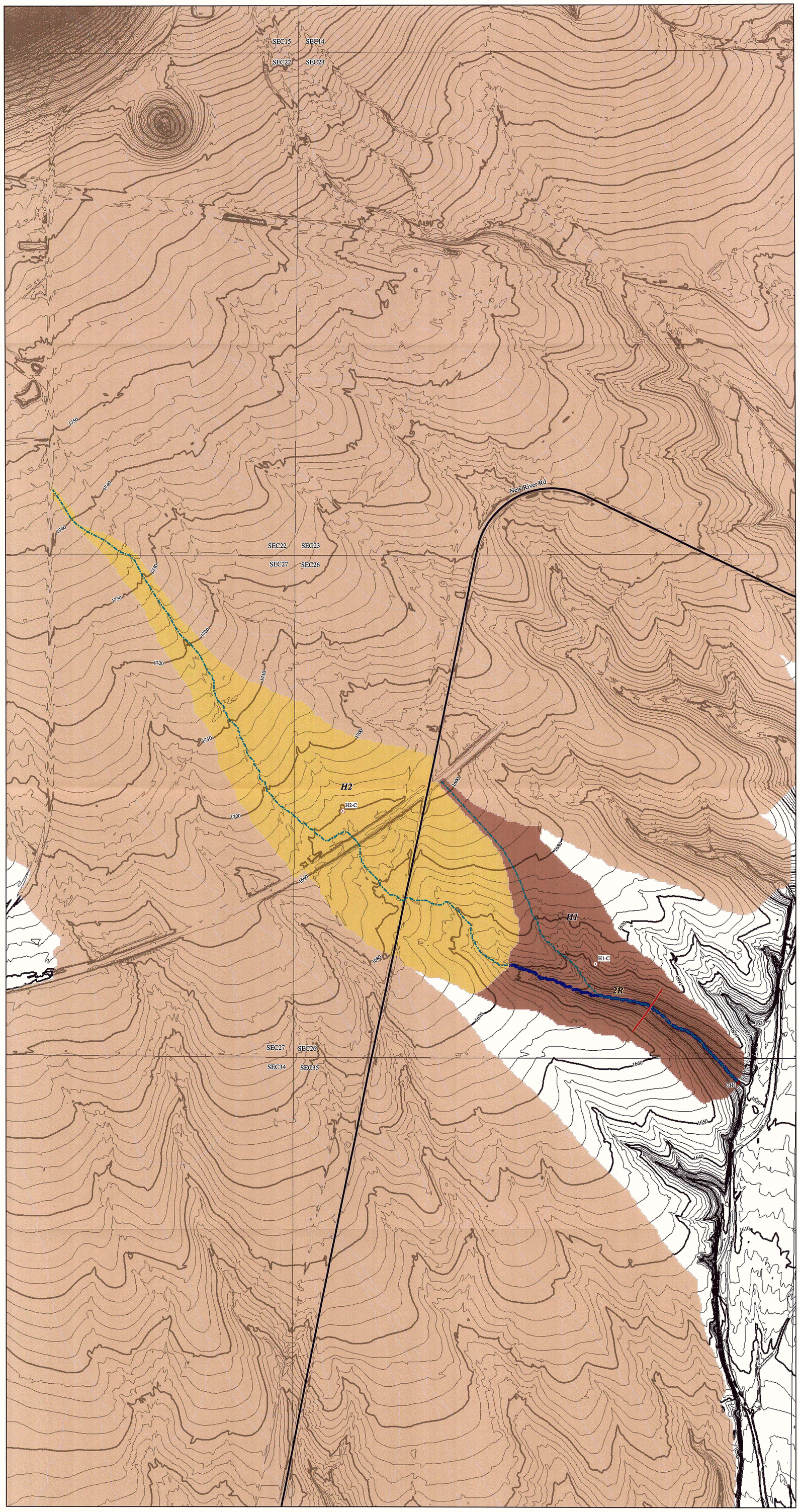

New River West FDS
Appendix D.6.H
Basin H
Lag Path & Routing Reach Map

LEGEND

- Section Lines
- Major Roads
- Basin H Lag Path
- 2R Basin H Routing Reaches
- Basin H Reach Route Cross Sections
- H1-C Basin H Centroids
- CH1 Basin H Outlet Point
- All Other Basins

Basin H Subbasin IDs

- H1
- H2

N

0 125 250 500
Feet
Scale: 1" = 500'

Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD 29

Data Sources:
ALRIS
MCFCD

Date: 06-09-04
MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
PM: M.R.
Checked By: M.M.
Cartography: D.G.

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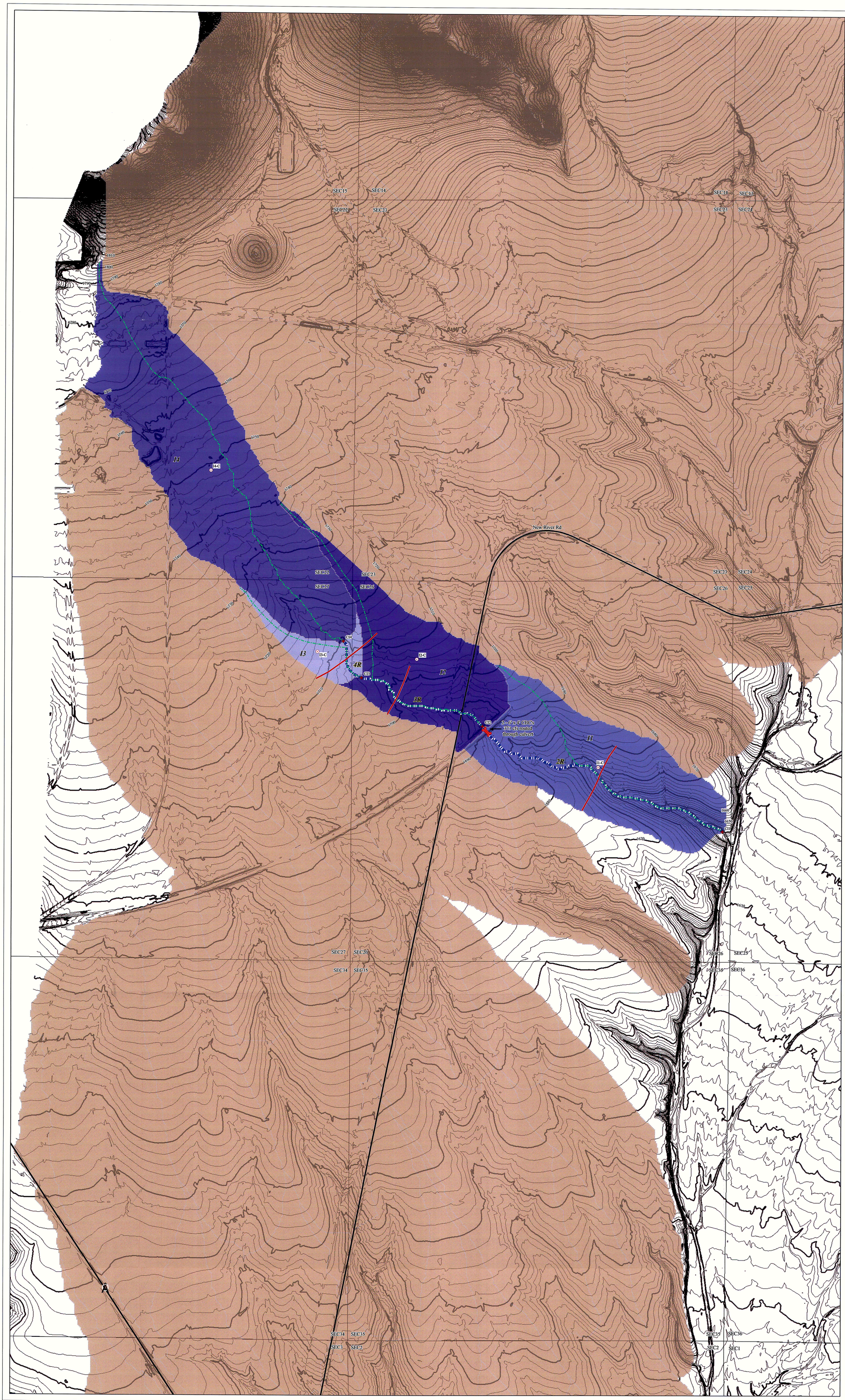
New River West FDS
Appendix D.6.I
Basin I
Lag Path &
Routing Reach Map



LEGEND

- Section Lines
- Major Roads
- Culvert Crossing Locations
- 2 FT Contour Lines
- 10 FT Contour Lines
- Basin I Lag Path
- 2R Basin I Routing Reaches
- Basin I Reach Route Cross Sections
- I1-C Basin I Centroids
- CI1 Basin I Outlet Points
- All Other Basins

Basin I Subbasin IDs

- I1
- I2
- I3
- I4

N

0 125 250 500
Feet
Scale: 1" = 500'

Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD 29

Data Sources:
ALRIS
MCFCD

Date: 06-09-04
MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
PM: M.R.
Checked By: M.M.
Cartography: D.G.

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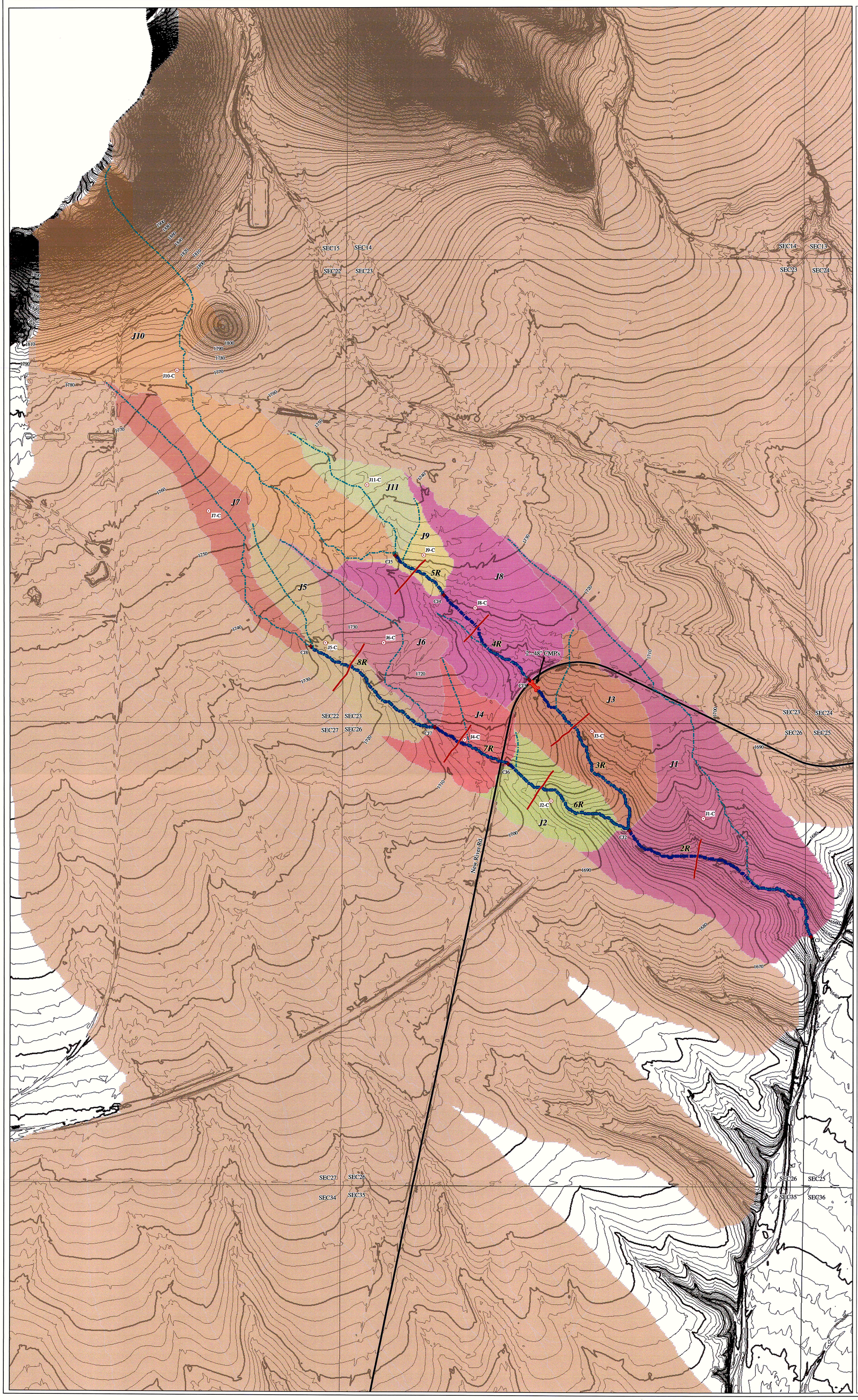
New River West FDS
Appendix D.6.J
Basin J
Lag Path &
Routing Reach Map



LEGEND

- Culvert Crossing Locations
- Section Lines
- Major Roads
- Basin J Lag Path
- Basin J Routing Reaches
- Basin J Reach Route Cross Sections
- Basin J Centroids
- Basin J Outlet Points
- All Other Basins

Basin J Subbasin IDs

- J1
- J2
- J3
- J4
- J5
- J6
- J7
- J8
- J9
- J10
- J11

0 250 500
Feet
Scale: 1" = 500'

Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD 29

Data Sources:
ALRIS
MCFCD

Date: 06-09-04
MCFCD Proj. No: FCD 2003-C057
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Checked By: M.M.
Cartography: D.G.

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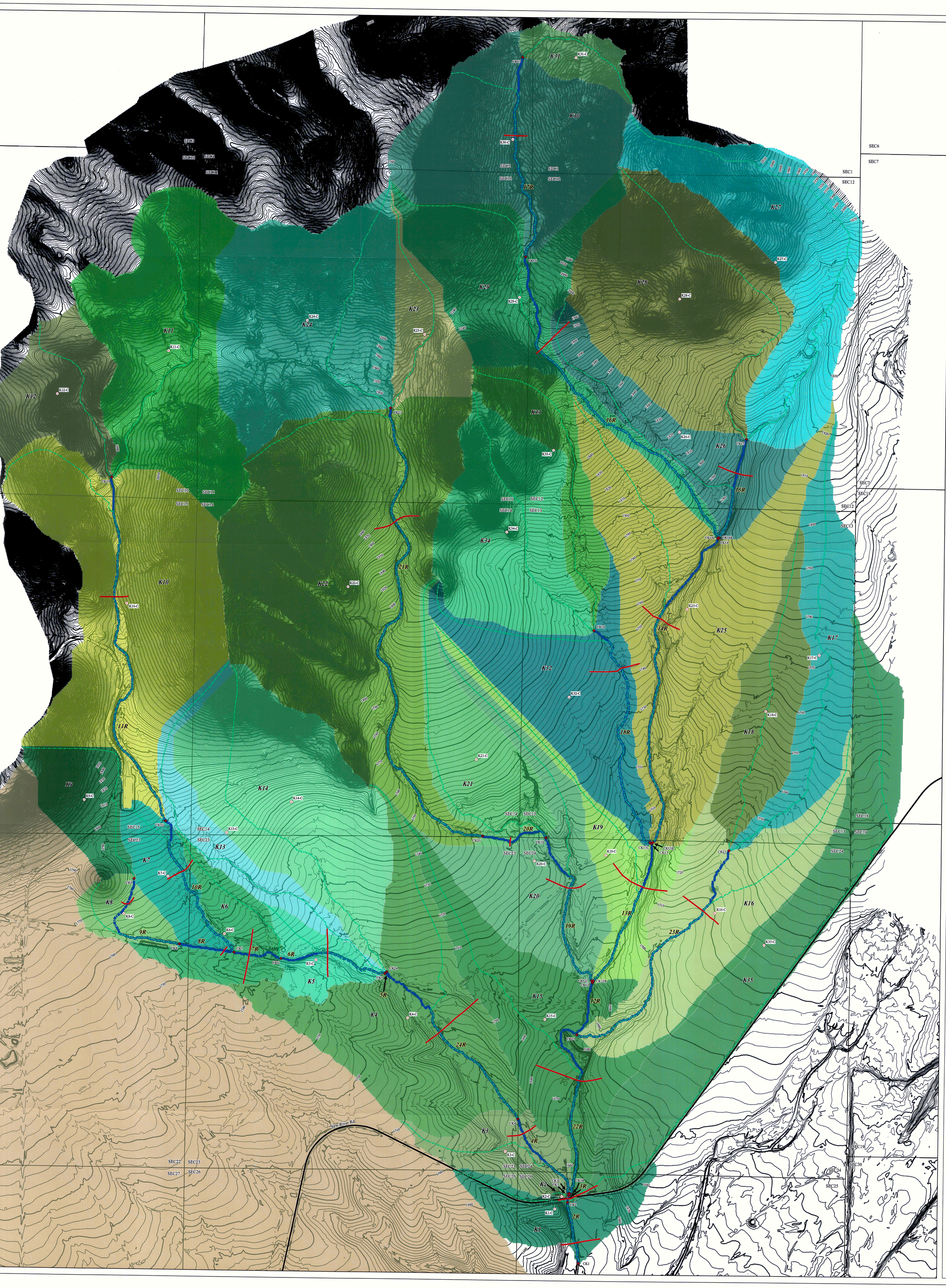

New River West FDS
Appendix D.6.K
Basin K
Lag Path & Routing Reach Map

LEGEND

- Section Lines
- Major Roads
- Basin K Lag Path
- Basin K Routing Reaches
- Basin K Reach Route Cross Sections
- K1-C Basin D Centroids
- CK1 Basin K Outlet Points
- All Other Basins

Basin K Subbasin IDs

- K1
- K2
- K3
- K4
- K5
- K6
- K7
- K8
- K9
- K10
- K11
- K12
- K13
- K14
- K15
- K16
- K17
- K18
- K19
- K20
- K21
- K22
- K23
- K24
- K25
- K26
- K27
- K28
- K29
- K30
- K31
- K32
- K33
- K34
- K35

N

0 250 500
Feet

Scale: 1" = 500'

Horizontal Datum:
NAD83 State Plane
AZ Central
Vertical Datum:
NGVD 29

Data Sources:
ALRIS
MCFCD

Date: 06-09-04
MCFCD Proj. No: FCD 2003-C057
URS Proj. No: 23443706
PM: M.R.
Checked By: M.M.
Cartography: D.G.

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