SOUTH BOULDER CREEK INTERIM HYDROLOGY STUDY

JULY 2000

TAGGART
ENGINEERING ASSOCIATES, INC.

THE URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
THE CITY OF BOULDER
BOULDER COUNTY
THE UNIVERSITY OF COLORADO

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July 2000

Mr. Bill DeGroot
Chief, Floodplain Management
Urban Drainage and Flood Control District
2480 West 26th Avenue, Suite 156-B
Denver, CO 80211

RE: SOUTH BOULDER CREEK INTERIM HYDROLOGY STUDY,
PHASE III

Dear Mr. DeGroot:

This Phase III report presents hydrology for the entire South Boulder Creek Watershed, with emphasis on the reach from the foothills upstream of Highway 36 to the confluence with South Boulder Creek. This document was prepared in accordance with appropriate City, County, Urban Drainage and Flood Control District (UDFCD), Colorado Water Conservation Board (CWCB), and Federal Emergency Management Agency (FEMA) requirements. We believe this report and the hydrology model meet all requirements of the contract and regulatory requirements. It should serve to reasonably portray the flood hydrology and related general hazard in the watershed.

Our Phase I effort, completed in 1996, identified that the Flood Hazard Area Delineation Report (FHAD, July 1986) underestimated the flow leaving South Boulder Creek at Highway 36 and did not portray spillage paths to the west side of the valley, particularly along Foothills Parkway. The Phase II report, submitted *in 1997, provided an initial reconnaissance of the overflow routes and* approximate flows of the West Valley Overflow north of Highway 36 to the area of the Wellman Ditch.

We obtained and reviewed additional hydrology information from the U.S. Army Corps of Engineers (Corps). In Phase I we modified the Corps' Storm Water Management Model (SWMM) model to better reflect the Viele watershed and its outfall channel to South Boulder Creek. In Phase II we refined the SWMM model detail downstream of Highway 36 in order to identify significant flow paths and approximate discharges in that area.

After Phase II, the University of Colorado joined the effort as a sponsor. The sponsors directed both a Hydrology Study (Phase III) and a Master Planning (Phase IV) effort.

We observed several discrepancies in the Corps' SWMM model during the Phase I and II studies. The two most important deficiencies include: 1) the drainage area in the Corp model is significantly less than the actual watershed area, and 2) the peak one-hour rainfall is less than that prescribed by local, regional, and National Oceanic and Atmospheric Administration (NOAA) procedures. In this Phase III study we determined that modifications were required for the Gross Reservoir storage and spillway characteristics, the stream hydraulics, and the land runoff characteristics. Changes were required to address each of these discrepancies.

During Phase III, we have constructed an essentially new hydrology model using the UDFCD UDSWMM computer program, but using portions of the Corps' model as a starting point. The following have been incorporated.

1. Revised rainfall using National Oceanic Atmospheric Agency (NOAA), City, County, UDFCD, and U.S. Bureau of Reclamation (USBR) procedures.
2. Electronic base mapping using City, County, and U.S. Geologic Survey (USGS) sources. Basins, streams, and other model features are delineated on this base.
3. Basin-wide review of National Resource Conservation Service (NRCS or formerly SCS) and U.S. Forest Service (USFS) soils and ground surface mapping to identify infiltration and other rainfall loss characteristics.
4. Updated Phase II model data downstream of Highway 36.
5. Detailed new modeling for the area from Eldorado Springs to Highway 36.
6. Correction of all Corps' modeling upstream of Gross Reservoir and redelineation of all basins downstream of Gross Reservoir.
7. Reasonableness comparisons with Eldorado Gage Data, Colorado Unit Hydrograph Procedure (CUHP) modeling of representative secondary watersheds, unit discharge (cubic feet per second (cfs) per acre), and regional discharge relationships.

The modeling was performed in accordance with regulatory requirements which do not permit incorporation of storage that exists in Gross Reservoir below the spillway and upstream of the rail line at many south tributary locations from the foothills to upstream of Gross Reservoir. The large floodplains below Eldorado Springs provide dynamic storage which is not well simulated by UDSWMM. Under actual conditions, this storage would attenuate the 100-year flood peaks below the figures in this report for South Boulder Creek downstream of Gross Reservoir. For this reason and others elaborated herein, we believe this hydrology should be considered interim until subsequent master planning is completed, efforts to formalize and sustain upstream storage are undertaken, and other refinements pursued.

We appreciate the cooperation we have received from the project sponsors, citizens, and the many agencies.

Sincerely,

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For any of those participants we missed we offer our apologies.

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LIST OF ACRONYMS

AcFt	Acre Foot
ARF	Area Reduction Factor
CADD	Computer Aided Design and Drafting
CDWR	Colorado Division of Water Resources
CFS	Cubic Feet per Second
CORPS	U.S. Army Corps of Engineers
CSU	Colorado State University
CU	Colorado University
CUHP	Colorado Unit Hydrograph Procedure
CWCB	Colorado Water Conservation Board
FEMA	Federal Emergency Management Agency
FHAD	Flood Hazard Area Delineation
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
G&O	Greenhorne & O'Mara, Inc.
HEC-1	Hydrologic Engineering Center - 1 Flood Hydrograph Package (Hydrology Program)
HEC-2	Hydrologic Engineering Center - 2 Water Surface Profile (Hydraulic Program)
M.S.L	Mean Sea Level
NOAA	National Oceanic and Atmospheric Administration
NRCS	National Resource Conservation Service
NWS	National Weather Service
RCN	Runoff Curve Numbers
SBC	South Boulder Creek
SCS	Soil Conservation Service now National Resource Conservation Service
Sq. Mi.	Square Mile
SWMM	Storm Water Management Model
SWMM EXTRAN	Storm Water Management Model Extended Transport Model
TEA	Taggart Engineering Associates, Inc.
TIN	Triangulated Irregular Network
TP	Technical Procedure
UDFCD	Urban Drainage and Flood Control District
UDSWMM	Urban Drainage and Flood Control District–Storm Water Management Model
UNET	One-Dimensional Unsteady Flow Through a Full Network of Open Channels
USBR	U.S. Bureau of Reclamation
USFS	U.S. Forest Service
USGS	U.S. Geologic Survey
WVO	West Valley Overflow

SECTION I

SUMMARY

WATERSHED

The South Boulder Creek Watershed encompasses 135.7 square miles (sq. mi.) of area starting from 13,294 feet elevation at the Continental Divide to its confluence with Boulder Creek at 5,160 feet elevation. As depicted by Drawings 1, 2, and 3 at the end of this report, the watershed is 27.2 miles long on a generally east west axis, and up to 6.3 miles wide. There are about 93.2 sq. mi. above Gross Reservoir and 42.5 sq. mi. below. The watershed is heavily forested between elevations 6,400 feet and 11,000 feet, particularly on the north facing slopes.

There are significant areas of rock outcroppings and steeply sloped, narrow streams and incised stream banks which can encourage flashy runoff response. The foothills are steep, have far less ground cover and higher peak rainfall than the mountain watershed, which leads to high runoff response. The lower valley and floodplain generally have higher soil infiltration characteristics, but have substantial rainfall runoff response because of the development of impervious areas and street drainage conveyances.

Gross Reservoir, completed in 1954 as a water reservoir for the Denver System, inadvertently provides a substantial flood control function for the Boulder community. Its purpose is to store up to 43,060 AcFt of water for domestic water supply. It is also authorized to generate power. Under current regulations, and due to the lack of any formal agreement to provide flood storage, this study can only assume storage above the crest of the spillway. The modeling herein estimates that during a 100-year flood, assuming the reservoir was full to the spillway crest, 1,780 acre feet of dynamic storage would occur, which attenuates the peak flow and delays the peak about 3 to 4 hours. The total 100-year rainfall volume tributary to the reservoir would be approximately 20,400 AcFt, while the total Basin Rainfall Volume would be 29,000 AcFt. Runoff would be roughly 5600 AcFt to the reservoir and 8000 AcFt for the total watershed. Therefore, Gross Reservoir, even if full to the spillway crest, has a significant effect on hydrology.

In the May 1969 Flood event, all runoff (5485 AcFt) from the mountains above Gross was captured with no discharge over the spillway. Reservoir statistics indicate that the average storage available for the months of May through August is 20% of the reservoir volume (8362 acre feet) with an average of 7.7% of the reservoir volume (3219 acre feet) available in June when the maximum volume of water is stored. However, modification of the reservoir operating practices could change these statistics.

Another historic facility that has substantial effects on actual hydrology is the rail line to Moffatt Tunnel. When the rail grade was constructed, the material excavated from ridges and tunnels was placed in valleys.

As the culverts placed are generally small, substantial storage exists. At one location, South Draw, the crossing provides on the order of 80 to 100 acre feet of storage, and practically reduces the 100-year peak to less than half. The next tributary to the west has a much smaller storage with no apparent culvert, and the runoff seeps through the embankment. We have not visited the other railroad storage sites. We believe there are 20 to 30 such storages, and total storage could amount to 500 to 1000 acre feet. There are roughly 5.1 square miles of tributary area to the rail line below Gross (or about 12 percent of the watershed below Gross) and 1.2 square miles of tributary area to the rail line above Gross.

The hydrology herein does not and cannot assume these rail line storages to be in place under current regulations until adequate institutional arrangements and appropriate improvements are made. It is also important to recognize these railroad storage areas pose a potential washout hazard, which could result in higher floods than predicted by the model herein.

The main waterway of South Boulder Creek has substantial effects on the hydrology because of its flood routing characteristics. In the mountains the sections vary widely. The steeper, narrower tributaries and higher elevation main streams can accelerate flows from upstream and cascade, or in lay terms, cause a flashy stream. Some segments with a shallow main stream overflow to moderately wide meadows. These segments would attenuate flows. In addition, there are other main stream segments which have deeper and steeper channels which would increase peaks.

As the flows leave the mountains, the waterways change dramatically to a wide alluvial valley. When depths exceed 2.5 to 4 feet, the water overflows into wide floodplains. Just above Highway 93, South Boulder Creek overflows to the West Valley Overflow. As shown on Drawings 4 through 11, South Boulder Creek and the West Valley Overflow repeatedly diverge and converge. The West Valley route often has a lower elevation than the corresponding elevation of South Boulder Creek across the floodplain. Dry Creek Ditch No. 2 diverts irrigation water in the midst of the upper split (see Drawing 4, element 1423). Generally Dry Creek Ditch No. 2 follows a shallow ridge between the two flow paths. However, at several locations the Dry Creek Ditch No. 2 is crossed by or carries flood waters.

The Flatirons Gravel Pit and Levee pushed the West Overflow toward South Boulder Creek (see Drawings 5 and 6). Without the levee, most of the West Valley Overflow would flow directly to the west of the Foothills and Highway 36 Interchange. Regardless of the levee, significant portions of flows in South Boulder

Creek just upstream of Highway 36 overflow to the West Valley, and potentially flood the urbanized area downstream.

South Boulder Creek downstream of Highway 36 to Arapahoe Road is largely natural with adjacent housing downstream of Baseline (Drawings 6, 7, and 8). The floodplain downstream of the Wellman Ditch is developed and is the location of another split across the golf course to the West Valley (Drawing 7). While the stream is natural here, it shows signs of aggregation from sedimentation, overgrowth, and resultant loss of capacity. Downstream of Arapahoe, South Boulder Creek is largely channelized.

The West Valley Overflow route downstream of Highway 36 is urbanized. The area is largely residential, with some commercial and office space near Foothills and Baseline and along and downstream of Arapahoe. Flood waters take many routes as illustrated on the drawings. The main overflow path starts downstream of Highway 36 on the west side of Foothills and travels northerly to the intersection of Baseline and Foothills.

At the intersection of Baseline and Foothills the flows split in seven directions. Three paths follow Foothills to the Wellman Canal. Some of this flood water enters the Wellman, but significant portions of the two roadway flows will largely leave the basin and enter Bear Canyon Creek. At the same time, Wellman Ditch flows from the west will enter as a transbasin flow, but the model, per contract and standard UDFCD practice, assumes none. There are probably some offsetting effects. That is, the Wellman brings flow in from Bear Creek while the flows on Foothills go to Bear Canyon.

Two of the flows from the Foothills and Baseline intersection follow Baseline. The last two are conveyed over and under Baseline, and join the Baseline flows after going through a minor storage, except for a small portion that crosses under Baseline to the drainage ditch on the north side, referred herein as the Crossover Ditch.

Spills from Baseline travel northerly through the Country Club Park, Centennial Trails, Arapahoe Ridge, and commercial areas to the north. The Wellman then receives most of these flows. While it has a significant cross section, its slope is flat, resulting in limited capacity which cannot convey significant flood waters. Spills would begin on the east side of the golf course, but as the flood discharge increases, sizable spills would occur to the west of 55th. Much of the flow on the west side of 55th will spill northerly to Boulder Creek through the commercial area.

The overflows on the golf course drain to Dry Creek Ditch No. 2, which is a large channel to the north of Arapahoe, then join South Boulder Creek flows and discharge to Boulder Creek.

PRIOR HYDROLOGY STUDIES

In 1977 the U.S. Army Corps of Engineers (Corps) conducted a hydrology study that included the South Boulder Creek Basin. That study provided the hydrology for the 1986 Urban Drainage and Flood Control District (UDFCD) Flood Hazard Area Delineation (FHAD) by Greenhorne and O'Mara (South Boulder Creek Flood Hazard Area Delineation), and the Federal Emergency Management Agency (FEMA) Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) for South Boulder Creek.

Although Gross Reservoir is not a flood control facility, it does affect flood runoff in two ways. First, if the reservoir level is lower than the spillway, it can trap some or all of the flood runoff. Second, even if the reservoir is full, dynamic flood storage can occur above the spillway level, lowering the flood peak discharged from Gross and delaying the flood discharge from the reservoir.

The 1973 R.W. Beck study determined that a release of 300 cfs would occur during the 100-year flood based upon examination of Denver Water Board records and policy. The G&O FHAD was based on Corps of Engineers modeling which assumed that the reservoir was full and that the flood from the 100-year rainfall above the reservoir would be attenuated by the storage volume above the spillway. The peak flow from the reservoir was modeled as 3900 cfs, and was several hours behind the downstream subbasin time of peak flow. The 1973 study is probably more realistic. The 1986 study is conservative, because it follows conventional UDFCD, CWCB, and FEMA practice to assume no storage below the spillway crest where there is no institutional agreement in place to provide and operate a flood storage function.

In 1996, Love and Associates (Flood Plain Analyses of South Boulder Creek at the Flatiron Property) identified that South Boulder Creek could spill greater flows than identified in the FHAD and that these spills could travel to the west side of the valley and overtop Highway 36, largely west of Foothills, and thus posed a hazard to the neighborhood north of Highway 36.

The TEA Phase I effort reviewed the FHAD and Love's investigation, and identified 100-year spills on the order of 2700 cfs from South Boulder Creek above Highway 36. The spill was shown to commingle with local drainage from the Dry Creek Ditch No. 2 and the Viele watershed. The Phase I effort obtained a copy of the Corps' hydrology model to identify the timing of the Viele inflows and allow simplified simulation of its drainage network. Some general problems were noted in the Corps' model, but the effort focused on the determination of how much of the South Boulder Creek spill would return via Viele and how much would continue to the West Valley Overflow route. Phase I analyses indicated that about 1800 cfs would continue to the West Valley Overflow north of Highway 36.

UDFCD authorized the Phase II Initial Reconnaissance Study to estimate the distribution of flooding in West Valley downstream of Highway 36 to the area of the Wellman Ditch. For the purposes of the Phase II study, the Corps' hydrology was not changed upstream of Highway 36 other than modifications to better reflect floodplain routing downstream of the mountains. All new basins and routing elements were inserted into the hydrology model for the Viele Basin and the area downstream of Highway 36.

Also, since questions regarding hydrology had been raised by the sponsors and by our work, requests to the Corps were made to obtain background data, basin mapping, and verification studies. A watershed basin map for the area near and above Gross Reservoir and a memorandum discussing model parameter sensitivity testing and rainfall were received.

OBJECTIVES OF THIS STUDY

The primary objective of this study is to prepare a new hydrologic analysis of the South Boulder Creek Watershed.

The initial use will be for the evaluation of flood damage mitigation alternatives for the reach of South Boulder Creek from Highway 93 to Boulder Creek.

Ultimate uses of the study will be for base hydrology for UDFCD flood hazard delineation studies (FHAD), FEMA Flood Insurance Rate Maps (FIRM), and planning of road and bridge improvements, channel modifications, and flood control structures. The hydrology should meet the requirements of the "Rules and Regulations for the Designation of Floodplains and of Storm or Flood Water Runoff Channels in Colorado" by CWCB and FEMA's "Guidelines and Specifications for Study Contractors."

SIMPLIFIED SCOPE

This effort is focused on:

1. Determining the design rainfall from NOAA references that is most appropriate for the South Boulder Creek watershed, particularly on the South Boulder watercourse from Highway 93 downstream to Boulder Creek.

2. Checking the Corps' SWMM runoff model upstream of Gross Reservoir, especially with respect to runoff area and infiltration characteristics.

3. Reconstructing the model, especially from just upstream of Highway 93 to Highway 36, using the City and County database (detailed topographic

mapping) and the previous hydraulic analysis of flow splits and floodplains by TEA and others.

4. Simulating the dual stream character of the floodplain downstream of Highway 93.

5. Calibrating the model to the 1969 flood or at least comparing for reasonableness, and spot checking major basin runoff using the UDFCD Colorado Unit Hydrograph Procedure (CUHP) for reasonableness. Review of the Eldorado stream gage data is also included, but efforts to review the Eldorado gage data and calibrate to the 1969 flood are limited.

6. Preparing basin and model maps, and model documentation such as representative hydrographs and discharge profiles.

7. Agency contact (Corps, USGS, CWCB, Natural Resource Conservation Service (NRCS), City of Boulder, Boulder County, Denver Water, and U.S. Forest Service (USFS)).

8. General characterization of flow timing, magnitude, and distribution in the South Boulder Creek floodplain below Highway 93.

9. Specific review and effort to comply with CWCB and FEMA requirements.

10. Summary report and technical appendices.

What is not required: snowmelt hydrology, infiltration testing, reservoir operations or storage statistical analysis, long term rainfall runoff modeling or statistical analysis using NWS or other long term rainfall records, extensive field surveys, floodplain storage routing, rain gage statistical analysis, hydraulics and split flow analysis beyond specific limits, floodplain hydraulic modeling or mapping.

<u>MODIFICATION OR DEPARTURES FROM SCOPE</u>

As with any study, the investigation raises facts and issues which inevitably lead to modification or departure from the scope. Some of these are as follows:

1. <u>Rainfall</u>. Contacts with NOAA were generally helpful. We attempted to get better guidance on arranging the temporal (time) pattern of the critical rainfall, however two of the references indicated didn't lead to fruitful results. UDFCD provided consultation with John Henz, meteorologist, which provided helpful guidance. We attempted to use a storm pattern he suggested, but were unable to satisfy NOAA statistics. Henz suggested providing a custom rainfall analysis of the UDFCD network and providing

design storms that were locally based, but this would require substantial funding and likely depart from NOAA based documentation, so the sponsors decided to not proceed beyond the TEA analysis herein.

2. Eldorado Stream Gage Data. The research revealed that the Eldorado Stream Gage had a substantial record of daily flows and was primarily used for management of water distribution to irrigation ditches. While peaks had been recorded, the gage had never been calibrated for flows greater than 600 cfs and had a rock control sill which had moved during floods.

   The use of the gage data for flood statistics should probably be considered more qualitative and a reasonableness check. The sponsors decided that we *shouldn't proceed further with gage investigation.*

   Review of the hydrology modeling herein, the Denver Water records, and inadvertent storage upstream of the rail line revealed that the gage record reflected substantial inadvertent storage, and thus cannot be used, per regulations.

3. Flood of May 1969. The 1969 event was investigated. The Denver data for Gross indicated that the upstream flood was entirely trapped in the reservoir. The USBR provided their files for rainfall data and analysis of the 1969 event. CU provided 15 minute rainfall data for the Boulder Creek watershed. While there were daily rain gage readings within the basin, there were no 5 or 15 minute rain data. Review of 1969 isopluvial maps from the USBR indicated that there could be a wide range of interpretation, with a resultant wide range of estimated model flows. Henz indicated that he might be able to review other data and construct detailed rainfall patterns at various locations in the watershed. The sponsors decided not to pursue this calibration concept further due to the expense and likely questionable results.

4. Upper Basin Modeling. Upon review of the Corps' model data for the mountains, TEA decided it was better to completely review all data for consistency to UDFCD/Boulder standards and correctness. Only the outline of the basins and element numbers were kept.

CONSULTATIONS

Numerous consultations with government and private agencies have taken place, highlighted as follows:

• City of Boulder and Boulder County	-CADD base topographic maps -Rainfall criteria for frequent events

• Colorado Division of Water Resources (CDWR)	-Stream gage data
• Colorado State Parks	-Eldorado State Park topography and surveys
• Colorado State Engineer's Office	-Gross and Marshall Lake Reservoir and Spillway characteristics
• Colorado State University (CSU)	-Fort Collins rainfall -Precipitation studies
• Colorado University (CU)	-1969 rainfall -Meteorological consultation
• Colorado Water Conservation Board (CWCB)	-Study requirements -Use of rainfall by NOAA -Regional analysis
• Denver Water	-Gross Reservoir operational data and guidelines -Dam and spillway information and dam safety reports
• Federal Emergency Management Agency (FEMA)	-Study requirements -Use of Eldorado gage data -Regional analysis
• Fort Collins	-Precipitation studies
• Henz Meteorological	-Storm precipitation review and suggestions -1969 flood event approach
• National Oceanic Atmospheric Administration (NOAA)	-Rainfall atlas data -Area reduction and storm pattern
• National Resource Conservation Service (NRCS)	-Soils -Storm pattern
• United States Bureau of Reclamation (USBR)	-1969 rainfall data -Storm pattern -Hydrology procedures

• United States Forest Service (USFS)	-Mountain soils
• United States Geological Survey (USGS)	-Electronic topographic base map (partial) -Stream gage data

UDSWMM MODEL

Drawings 1 through 11 are electronic drawings which have USGS topographic (40 foot contour interval) map bases for the entire watershed (Drawings 1 through 3), and City/County topographic (5 foot/2 foot contour interval) and landscape feature maps (Drawings 4 through 11). The subbasins, streams, combining or splitting nodes, and reservoir elements which make up the UDSWMM hydrology model are all located on these maps, with appropriate delineation of their linkage and general routes of flow.

The hydrology models for the 10-, 50-, 100- and 500-year events are presented in appendices A1 through A4 under the file names: sbc_10td.out (10-year), sbc_50td.out (50-year), sbc_1td.out (100-year), and sbc_500td.out (500-year). All standard input and output data are presented in the files. Hydrographs are not printed to save paper. For those interested, electronic input files can be provided, and the user can obtain the desired hydrographs. Representative hydrographs are presented in Section V.

SUMMARY FLOW RESULTS AND COMPARISON WITH PREVIOUS HYDROLOGY

Table I-1 is a summary comparison between the previous Corps' hydrology model and the figures used in the current effective floodplain maps.

The summary table begins at Gross Reservoir and proceeds downstream. Stream or node element numbers, given in the table, can be identified on the drawings.

At Highway 93 the flood flows split along two or more roughly parallel locations down the floodplain. Since there are multiple parallel flow paths across the lower watershed in the new model, it is complicated to make exact comparisons with the old modeling, as the time to peak flow is different as each flow route crosses at a reference line, for example, Highway 36 or Baseline. The table gives for representative reference lines the peak flow for each flow path and then the peak sum flow across all paths at a given time. Determination of this peak sum flow was done by examining each of the flow path hydrographs at a given time. These peak sum flows in the last column can be compared to the previous hydrology. Generally the new model gives results that are 37 to 66 percent greater than the previous.

At the lower end of the watershed the model shows flow discharging at four locations. The main flow in South Boulder Creek joins with Boulder Creek at the historic confluence. At Foothills and the Wellman Ditch, spills to Bear Canyon Creek occur. On the west side of 55th downstream of Arapahoe some overflow from the Wellman traverses through an industrial/commercial area directly to Boulder Creek. Also, flow leaves South Boulder Creek just downstream of Arapahoe through overflows to Valmont.

The model does not depict flow leaving the watershed by following numerous other irrigation ditches and spills to Baseline reservoir, which can occur. The Wellman diversion is treated differently, per sponsors' direction, because its embankment physically crosses the main floodplain, and backs up and redistributes flood waters. The diversion to Valmont would immediately overflow to Boulder Creek and reflects overflow of the headworks.

TABLE I-1

SUMMARY 100-YEAR PEAK FLOOD FLOW HYDROLOGY COMPARISONS SOUTH BOULDER CREEK (SBC) AND WEST VALLEY OVERFLOW (WVO)

(flow in cubic feet per second (cfs))

<table>
<tr><th rowspan="2">LOCATION</th><th rowspan="2">VALUES USED IN HEC-2 FLOODPLAIN</th><th rowspan="2">SWMM MODEL BY USACE 1977</th><th colspan="4">TEA PHASE III HYDROLOGY sbc_1td.out MODEL</th></tr>
<tr><th>ELEMENT</th><th>ELEMENT FLOW (PEAK TIME)</th><th colspan="2">*SIMULTANEOUS SBC & WVO @ PEAK DISCHARGE (PEAK TIME)</th></tr>
<tr><td>SBC into Gross</td><td>N/A</td><td>7696</td><td>#8</td><td>9148</td><td colspan="2">N/A</td></tr>
<tr><td>SBC out of Gross</td><td>N/A</td><td>3862</td><td>#397</td><td>4029</td><td colspan="2">N/A</td></tr>
<tr><td>Eldorado Gage</td><td>N/A</td><td>4462</td><td>#50</td><td>7883</td><td colspan="2">N/A</td></tr>
<tr><td>SBC upstream of split above Highway 93</td><td>5740</td><td>5743</td><td>#1421</td><td>9200</td><td colspan="2">N/A</td></tr>
<tr><td colspan="7">HIGHWAY 93</td></tr>
<tr><td>SBC @ Highway 93</td><td>2100</td><td rowspan="2">5743</td><td>#1509</td><td>2121 (9:50)</td><td colspan="2" rowspan="2">9552 (10:00)</td></tr>
<tr><td>WVO @ Highway 93</td><td>3850</td><td>#1533</td><td>7442(10:00)</td></tr>
<tr><td colspan="7">UPSTREAM HIGHWAY 36 BEFORE SPLIT</td></tr>
<tr><td>SBC upstream of Highway 36 before split</td><td>4160</td><td rowspan="2">6163</td><td>#44</td><td>8238(10:30)</td><td colspan="2" rowspan="2">9362 (10:30)</td></tr>
<tr><td>WVO upstream of Highway 36 before split joins</td><td>2000</td><td>#1442</td><td>1127(10:35)</td></tr>
<tr><td colspan="7">HIGHWAY 36</td></tr>
<tr><td>SBC downstream of Highway 36</td><td>4500</td><td rowspan="2">6163</td><td>#1427</td><td>3979(10:30)</td><td rowspan="2">9334**
(10:35)</td><td rowspan="4">9427***
(10:35)</td></tr>
<tr><td>WVO spill from SBC @ Highway 36</td><td>1660</td><td>#262</td><td>5374(10:40)</td></tr>
<tr><td>WVO from Upper Viele</td><td>N/D</td><td>N/D</td><td>#1920</td><td>922 (8:15)</td><td rowspan="2"></td></tr>
<tr><td>WVO for Flatirons Pit</td><td>N/D</td><td>N/D</td><td>#304</td><td>78 (8:25)</td></tr>
</table>

N/A = Not Applicable
N/D = Not Determined in Previous Study
*This column, where applicable, is the largest total of the flows in SBC and the WVO at the same time. Peak flows of each stream may occur at different times due to different travel times and local inflows. Thus the peaks in the column to the left may not sum to the value of this column.
** Compares flows similar to previous model flow data.
***Total flow at location including previously unmodeled flows.

TABLE I-1 (Continued)

SUMMARY 100-YEAR PEAK FLOOD FLOW HYDROLOGY COMPARISONS
SOUTH BOULDER CREEK (SBC) AND WEST VALLEY OVERFLOW (WVO)
(flow in cubic feet per second (cfs))

LOCATION	VALUES USED IN HEC-2 FLOODPLAIN	SWMM MODEL BY USACE 1977	TEA PHASE III HYDROLOGY sbc_1td.out MODEL			
			ELEMENT	ELEMENT FLOW (PEAK TIME)	*SIMULTANEOUS SBC & WVO @ PEAK DISCHARGE (PEAK TIME)	
SOUTH BOULDER ROAD						
SBC upstream of Viele	4500		#243	3929(10:40)	8757** (11:15)	8921*** (11:15)
WVO return from Viele	1660	6163	#289	1113(11:20)		
WVO return from Anderson Ditch	N/D	N/D	#377	109 (11:30)		
WVO @ Highway 36 overflow west of Foothills	N/D	N/D	#1812	3872(11:15)		
Other small flows crossing into subdivisions–Dry Creek Ditch No. 2	N/D	N/D	#1366	128 (11:15)		
	N/D	N/D	#1367	14 (8:20)		
	N/D	N/D	#1374	36 (10:45)		
BASELINE						
SBC @ Baseline	6400	6526	#241	4835(11:20)	8872 (11:25)	
WVO @ Foothills and Baseline	N/D	N/D	#359	3868(11:25)		
(Other small flows crossing Baseline)						
E. side Foothills			#363	15 (8:10)		
Manhattan Dr. crossing			#366	170 (8:15)		
Dry Creek No. 2			#371	254 (8:20)		
Meadow Glen Dr. crossing			#338	103 (8:20)		
ARAPAHOE						
SBC @ Arapahoe	2600	6630	#232	2406(12:05)	6696 (12:05)	
WVO @ Dry Creek Ditch No. 2	4030	N/D	#1909	3924(12:05)		
WVO just west of 55th	N/D	N/D	#1365	974 (12:00)		
WVO at Range Street	N/D	N/D	#1371	4 (11:55)		

N/A = Not Applicable
N/D = Not Determined in Previous Study
*This column, where applicable, is the largest total of the flows in SBC and the WVO at the same time. Peak flows of each stream may occur at different times due to different travel times and local inflows. Thus the peaks in the column to the left may not sum to the value of this column.
**Compares flows similar to previous model flow data.
***Total flow at location including previously unmodeled flows.

TABLE I-1 (Continued)

SUMMARY 100-YEAR PEAK FLOOD FLOW HYDROLOGY COMPARISONS SOUTH BOULDER CREEK (SBC) AND WEST VALLEY OVERFLOW (WVO)

(flow in cubic feet per second (cfs))

LOCATION	VALUES USED IN HEC-2 FLOODPLAIN	SWMM MODEL BY USACE 1977	TEA PHASE III HYDROLOGY sbc_1td.out MODEL		
			ELEMENT	ELEMENT FLOW (PEAK TIME)	*SIMULTANEOUS SBC & WVO @ PEAK DISCHARGE (PEAK TIME)
BOULDER CREEK AND ENDING SPILLS					
SBC @ Boulder Creek Confluence	6630	6634	#270	6320(12:55)	7516 (12:30)
WVO spill west of 55th @ Range St. to Boulder Creek	N/D	N/D	#1372	620 (12:05)	
Spill to Valmont	N/D	N/D	#1403	103 (12:00)	
WVO lost to Bear Canyon Creek	N/D	N/D	#1305	1247(11:40)	

N/A = Not Applicable

N/D = Not Determined in Previous Study

*This column, where applicable, is the largest total of the flows in SBC and the WVO at the same time. Peak flows of each stream may occur at different times due to different travel times and local inflows. Thus the peaks in the column to the left may not sum to the value of this column.

**Compares flows similar to previous model flow data.

***Total flow at location including previously unmodeled flows.

DISCHARGE PROFILES

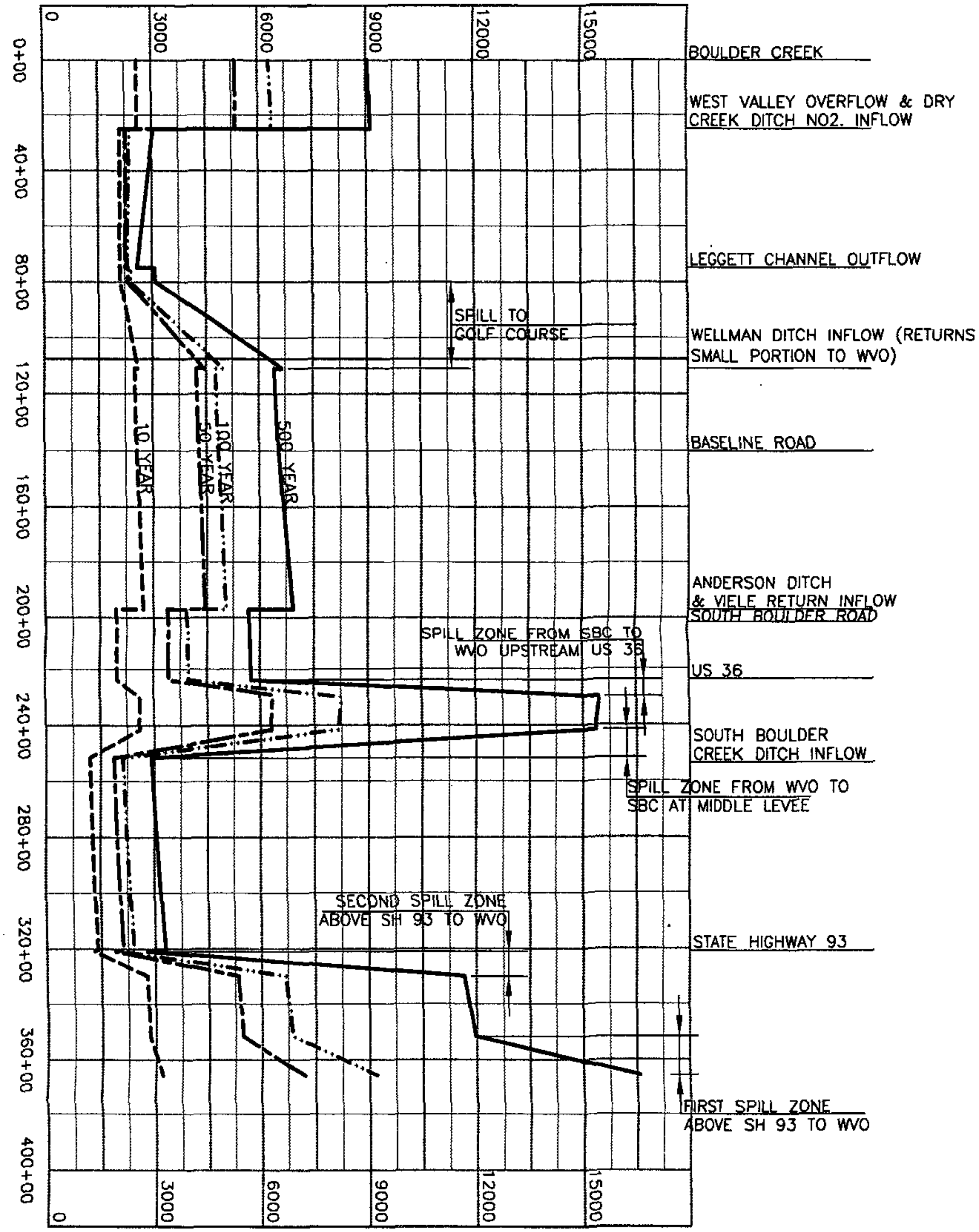
The discharge profiles for South Boulder Creek and the West Valley Overflow are presented in Figures I-1 and I-2, respectively. Stationing along South Boulder Creek begins at the confluence with Boulder Creek and increases going upstream. The significant spill from South Boulder Creek to the West Valley Overflow begins approximately at Station 359+50 on South Boulder Creek.

The Figure I-1 South Boulder Creek discharge profile shows four major spills to the West Valley Overflow: two upstream of Highway 93, one upstream of Highway 36, and one downstream of the Wellman to the golf course. Two major inflows occur: one from the West Valley Overflow in the area of the middle levee on CU's property, about 1500 to 2000 feet upstream of Highway 36, and the Viele/Anderson Ditch inflow which carries some of the West Valley Overflow discharge back to South Boulder Creek. There are also several tributary basin inflows, such as David's Draw and the areas along South Boulder Creek.

The Figure I-2 discharge profiles show the spills from South Boulder Creek above Highway 93 and Highway 36, and the flows returning to South Boulder Creek near the CU middle levee and the Viele channel and Anderson Ditch. At Baseline the West Valley Overflow spills seven different ways, three of which can send portions of their discharges to Bear Canyon Creek. Some of this flow, and flood discharges following other routes, discharge to the Wellman Ditch, with a portion of the total flow going north to Boulder Creek through neighborhoods midway between 55th and Foothills. From Foothills and Baseline, the West Valley Overflow discharge only reflects the estimated portion of the West Valley Overflow following the Crossover Ditch and Dry Creek Ditch No. 2. The discharge drops to nil (30 cfs) for the flow crossing under the Wellman. Thus, of all the flow arriving in the West Valley Overflow to Foothills and Baseline, most spills to Bear Canyon Creek or the Wellman Ditch, with portions of the Wellman overflow going north to Boulder Creek. Downstream of the Wellman the route along Dry Creek Ditch No. 2 increases as the Wellman spills just upstream and downstream of 55th, and increases again midway across the golf course due to the South Boulder Creek spill.

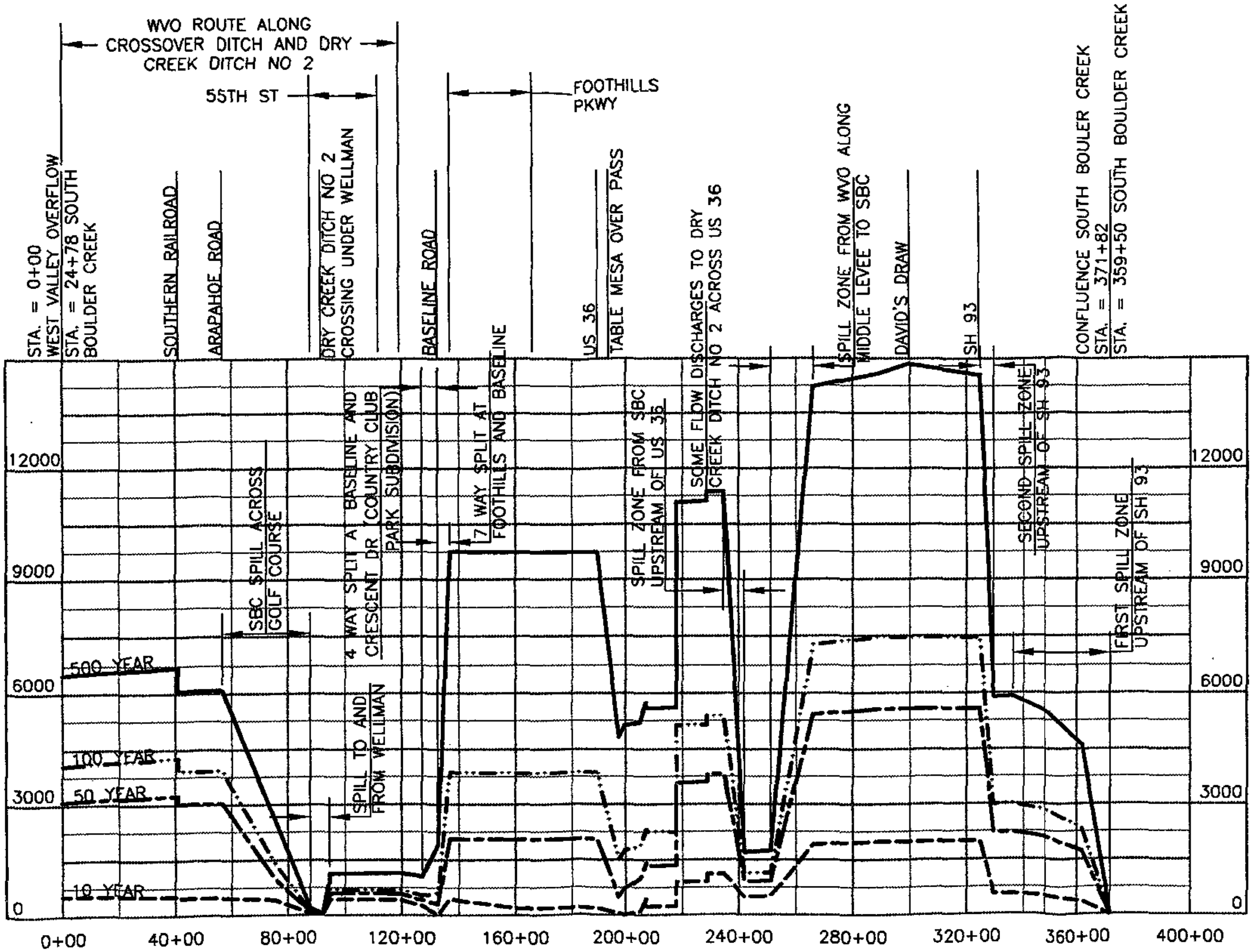
MODEL REASONABLENESS AND REFINEMENT

Detailed model verification and reasonableness evaluations are presented in Section V for individual basins, comparative Colorado Unit Hydrograph Procedure (CUHP) modeling for representative tributaries, for regional relations developed by CWCB, and other unit discharge (cfs/acre) comparison. It appears the results are reasonable for the tributary watersheds.



NOTE: WVO BEGINS AT APPROXIMATELY STA. 359+50 UPSTREAM OF HIGHWAY 93. SOME OF THIS FLOW NEVER RETURNS TO SBC, DISCHARGING TO BEAR CANYON CREEK AND BOULDER CREEK.

SOUTH BOULDER CREEK
DISCHARGE PROFILE
TEA FIGURE I-1



WEST VALLEY OVERFLOW
DISCHARGE PROFILE
TEA FIGURE I–2

Mountain Modeling

Comparison of statistical analysis of the Eldorado Gage stream flow data with the UDSWMM deterministic model reveals an apparent disparity as the statistical methods give lower discharges than UDSWMM. We believe this is explained by the flood storage which is taking place in Gross Reservoir and the numerous storages upstream of the Moffatt rail line. To a lesser degree, refining the South Boulder Creek channel routing parameters based on representative field survey sections might reduce (or increase) the UDSWMM model result.

Storage exists upstream of the rail line on South Draw, the major tributary above the Eldorado gage. Other storages upstream of the rail line can be observed on the topographic maps, but we have not documented their characteristics or effects. Further, the Denver Water operational data for Gross Reservoir illustrate significant storage of flood type events, such as the flood of May 1969.

The regulations only allow recognition of storage above fixed spillways of water supply storage operated by governmental entities. Specifically prohibited is recognition of storages such as those formed by rail lines unless there are institutional agreements and the facilities are documented as adequate. Therefore, there are only two basic choices regarding selection of analytical model techniques:

1.a) Make institutional arrangements to either preserve the operational practices of Denver Water which result in flood storage, or explore other institutional arrangements and improvements which would enhance storage at Gross.
   b) Investigate characteristics, needed physical improvement, and make institutional arrangement with the Railway to preserve or enhance this storage.
   c) Refine the UDSWMM modeling accordingly to reflect the physical condition and changed facilities, comparing again with statistical methods if the physical and operational conditions are the same.

Or

2. Don't rely on the statistical data at the Eldorado gage, since it represents the result of inadvertent storage.

The sponsors have decided to proceed with the latter choice and issue this report on an Interim Basis, since making arrangements with Denver Water and the Railway could take too long. The sponsors are pursuing possible cooperative arrangements with Denver Water. They may pursue storage with the Railway, both to evaluate washout hazards and for flood control, but at a later date after the Master Planning effort has made significant progress toward an agreed solution.

Floodplain Hydrology Modeling below the Canyon through the Urban Area

While the model here gives reasonable results for the tributaries of the foothills and floodplain areas, the actual main stream routing is deficient because of the inherent limitations of UDSWMM, which doesn't simulate dynamic storage routing.

Review of the total discharges proceeding from Highway 93 downstream reveals that there is essentially no reduction of peak flow until past Baseline. Also, comparison of the hydrograph shapes at various points down the main stream and the West Valley Overflow reveals that the spiky peaks are not being attenuated. Floodplain dynamic storage routing is a well documented phenomena. We believe different modeling techniques should be used such as either HEC-1 stream routing based on HEC-2 model storage routing data, or a more advanced version of SWMM with routing capability EXTRAN, or UNET. Most importantly, the peaks of the main stream hydrographs are being spilled to the West Valley urban area. Any attenuation of the peaks in the main stream results in direct reductions of spills to the West Valley. Section V presents comparative hydrographs to illustrate these points.

The 500-year flood event appears to be reasonably simulated, but probably could be refined. For this and the other events, the model is subject to survey and hydraulic analysis refinements of the numerous splits and subsequent floodplain hydraulic modeling.

Reasons for Change from Previous Model

Basically the total flows are higher than the 1977 Corps' model because of increased and longer duration rainfall, increased area, and to a lesser degree, because of more appropriate land surface and stream routing characteristics. The flows would have been even higher, but Gross Reservoir was found to have larger storage than that previously used by the Corps based on information from both the Colorado State Engineer's Office and Denver Water.

GENERAL CONCLUSIONS

While we are satisfied with the results of the modeling effort and feel that the report will meet regulatory requirements, allow reliable and safe delineation of floodplains, hydraulic structure sizing, and form a base for initiating the master planning effort; there are several conditions to be aware of:

1. Gross Reservoir in reality provides significant flood storage below the crest of its spillway, which is to the benefit of the downstream residents so long as its operation is sustained. The model does not depict this storage below the spillway crest, as directed by the sponsors and following CWCB and FEMA

regulations. If a formal agreement was made with Denver Water to sustain their historic operating practices, or other arrangements made for providing flood storage, then the hydrology downstream would be lower, mainly from a total flood volume and duration perspective. Peak flows in the urban areas are dominated by storms occurring in Eldorado Canyon and the downstream watershed.

2. The rail line to the Moffatt Tunnel provides, we believe, significant flood storage on the south tributaries from the foothills to above Gross Reservoir. We are familiar in detail with one site on South Draw where about 80 to 100 acre feet of storage occurs and reduces the 100-year flood peak by more than half.

   There may be as many as 20 to 30 storages that exist, that vary from the very small to a size such as that found in South Draw. Since agreements are not in place to sustain these storages, they have not been included. These storages exist, benefitting the downstream conditions for most events, but also may present a hazard, as the storages are not engineered for flood control and may be susceptible to breeching during large floods.

3. When flood control facilities, floodplain mapping, or refined surveys are available, the hydrology model can be further refined to better depict flow splits and hydraulic controls. Thus, we can envision further revisions to the hydrology model in the future.

4. The UDSWMM program has very limited stream flow routing algorithms. We feel it is inadequate to simulate the dynamic floodplain storage routing of the South Boulder Creek below Eldorado Springs and the West Valley Overflow. Thus the peak flows in these areas, determined in this study, are probably high. Effectively, the peaks of the hydrographs are "trimmed" and sent to the West Valley Overflow without the natural attenuation that exists.

5. Our limited sensitivity tests indicate that the model is highly responsive to the geometry given for the South Boulder Creek main stream. While our work for the Colorado State Parks has afforded the opportunity to incorporate field survey of representative sections at Eldorado State Park, it may be worthwhile to conduct field surveys of representative sections at other locations in order to better represent the mountain streams.

RECOMMENDATIONS

1. The hydrology modeling herein appears reasonable and should be adopted on an interim basis.

2. The hydrology can be used in the alternative evaluation process. Alternatives developed might consider options to "firm up" existing flood storage in the mountains, which may in turn lower flows to the significant, potentially impacted floodplain in the West Valley.

3. Stream flow routing model improvements should be pursued in the main stream below Gross and especially in the floodplains downstream of Eldorado Canyon, particularly if new floodplain mapping is to be pursued.

4. This new hydrology model should be considered as an interim result and subject to further change. Subsequent surveys, analysis, floodplain mapping, and design of improvements may reveal the need for refinements to reflect important splits, floodplain characteristics and dynamic storage, and other factors.

SECTION II

SOUTH BOULDER CREEK WATERSHED

GENERAL FEATURES

There are numerous features which influence South Boulder Creek flows arriving at the Highway 36 Bridge.

There are approximately 93.2 square miles of mountainous watershed above Gross Reservoir, ranging in elevation from about 7300 feet to the Continental Divide (11,900 to 13,294 feet M.S.L.). Flooding at these altitudes is often dominated by snowmelt runoff. Rainfall data is sparse and the NOAA Atlas statistics are less reliable at these elevations.

Gross Reservoir captures much of the basin runoff and stores it with diversions from the west slope. The west slope diversions are reduced when the reservoir is nearly filled. Practically, most flood runoff events would probably be trapped for later release. Even with a conservative assumption that the reservoir was full at the beginning of the flood, as made by the Corps and herein, the spillway and reservoir characteristics would greatly attenuate inflows and delay the upstream peak flows from joining downstream peak flows.

Downstream of Gross Reservoir to Eldorado Springs there are approximately 19.4 square miles of steeply sloping mountainous watershed ranging in elevation from 5720 to 8900 feet M.S.L. The Eldorado Stream Gage is about one mile upstream of Eldorado Springs. There, the tributary area below Gross is 18.2 square miles. This area can experience significant extreme rainfall with resultant large peak flows.

South Boulder Creek emerges from the mountains at Eldorado Springs and flows to Highway 93, gaining another 7.9 square miles of tributary area (27.3 square miles below Gross) of steep watershed ranging from 5400 to 8760 feet.

South Boulder Creek begins to have alluvial fan characteristics above Highway 93. Modest flood flows can spill from the main channel, which is generally on the east side of the valley, and travel along a west overflow path with two irrigation ditches (hereafter referred to as the West Valley Overflow). One of the ditches is the Dry Creek Ditch No. 2, which travels a separate 6 mile route before rejoining South Boulder Creek. Ground elevations in the valley are often lower west of Dry Creek Ditch No. 2, therefore, flood flows can be carried west of this Ditch.

From Highway 93 to Highway 36 another nine square miles are potentially tributary to South Boulder Creek at Highway 36 (36.3 square miles below Gross), ranging in elevation from 5350 M.S.L. to 8461 M.S.L. at Bear Peak. The character of the of the watershed varies significantly. Bear Peak and steep mountain slopes aligned with the Flatirons are on the west. David's Draw, which is also on the west side, has some dense development. There are moderately steep to mildly sloping agricultural areas, open space, riparian cottonwood groves, and the gravel pit area in and along the valley bottom. There is a large foothills tributary on the east which includes the Marshall Reservoir and a downstream basin which has steeply sloped valley sides with a mixture of brush, grass, and trees. On the east side of the watershed there are moderately sloping agricultural areas which naturally drain to South Boulder Creek, but whose drainage is interrupted by several irrigation ditches.

The wide floodplains and multiple flow paths of South Boulder Creek provide an important balancing effect by storing, routing, and slowing the flashy peak runoff rates from the steep slopes and tributary streams. From Highway 93 to Highway 36 the main channel conveys day to day flows, and whatever flood flows do not spill upstream. The majority of the 100-year flood will be carried in the West Valley Overflow route. However, the West Valley Overflow is forced to carry much of the water back to South Boulder Creek by the Upper and Middle Flatirons Quarry Pit (CU) levees just upstream of Highway 36. Some minor amount of the overflow will not return to South Boulder Creek and will be conveyed by either Dry Creek Ditch No. 2 and or limited overbank conveyance to join the South Boulder Creek spill just downstream at Highway 36.

Downstream of Highway 36 and the main channel of South Boulder Creek there are another 6.2 square miles of potential tributary area (42.5 square miles below Gross Reservoir, 135.7 square miles total basin). This basin ranges in elevation from 5170 feet M.S.L. at the confluence with Boulder Creek to 6050 feet M.S.L. at the top of the Viele watershed. The watershed is largely urbanized with notable exceptions being the riparian corridor directly along the main channel of South Boulder Creek, the highest portion of the Viele watershed, the golf course, and some of the hills on the east side of the watershed. The valley bottom is a mile wide and is an alluvial fan, with varying cross slope direction and some moderate down valley slope.

The Viele watershed is on the southwest side of the basin, and begins on a ridge just south of the confluence of Bear Canyon Creek and Fern Canyon. It has four significant storage facilities and an outfall channel on the south side of the valley that crosses Highway 36 at the Foothills Interchange and then joins South Boulder Creek just north of South Boulder Road.

IRRIGATION DITCH DIVERSIONS

There are numerous water supply and irrigation diversions and ditches in Eldorado Canyon and the downstream watershed. Normally, the diversion effect of flood waters by irrigation systems, such as transbasin diversions and storm drainage conveyance by ditches, is not considered in the sense of having a positive mitigating or other effect on flood control or conveyance because the local governments normally have no control of the ditch companies and because the ditch companies are not usually responsible for, nor are they required to convey runoff water which enters the ditches.

The irrigation diversions and ditches do have physical effects, both positive and *negative, on the drainage and flood control for this watershed in the following* ways:

1. Aggradation of stream beds can occur at diversion structures which can cause changes in flood flow distributions and levels. Examples include the South Boulder Ditch, Dry Creek Ditch No. 2, the Marshallville Ditch, the Shearer Ditch, the Leggett Canal, the McGinn Ditch, the New Anderson Ditch, the New Dry Creek Ditch, the Enterprise Ditch.

2. Redistribution and collection of flood waters, particularly in the South Boulder Creek overflow, occurs because of the ditches and related conveyance structures. Examples include South Boulder Ditch, Dry Creek No. 2 Ditch, Marshallville Ditch, the Anderson Ditch, the Wellman Ditch.

The East Boulder Ditch appears to have little potential effect.

Bear Canyon Creek can spill to the Anderson Basin (and Ditch) at Table Mesa and Broadway (Highway 93). However, no spillage or transbasin diversion is assumed herein according to the contract and accepted practice.

Downstream of Highway 36 on the west side of the basin there are three subbasins which are drained by storm sewers to Bear Canyon Creek, but which may contribute to the South Boulder Creek basin because of street drainage patterns and the Wellman Ditch. The Wellman Ditch can also bring in significant runoff from other watersheds, particularly Bear Canyon Creek. No transbasin flow is assumed.

There are three irrigation ditches which have been incorporated into the SWMM model, on a limited basis, because their bank topography and overflow carrying capacity significantly influence the redistribution of South Boulder Creek flood waters. These include:

1. The Wellman Ditch from upstream of Foothills to South Boulder Creek

2. The Anderson Ditch from Highway 36 to Viele and South Boulder Creek

3. The Leggett Canal to Valmont, which can receive headgate overflows and convey flood waters to Boulder Creek

KEY FLOOD CONTROL FEATURES

There are numerous features which presently control and/or potentially can change and affect the distribution of South Boulder Creek floodplain flows. For purposes of simplification and organization these can be grouped as follows.

The Upper or Highway 93 Split (See elements 1423 and 1413 and Drawings 4, 5, and 9.)

Two splits redistribute a major portion of the South Boulder Creek flow to the west side of the valley at Highway 93. There is a complex of several facilities and topographic characteristics, including the South Boulder Ditch and Dry Creek Ditch No. 2 diversions, low main channel capacity and flow characteristics, Highway 93 bridge capacity and the downstream Marshallville Ditch diversion, and the profile of the local access road which controls much of the overflow hydraulics and interaction with the spills just above Highway 93.

It is important, for the purposes of floodplain management, to realize that changes of any one component are unlikely to effectively reduce the spill. For example, if one enlarged the Highway 93 bridge over the main channel in order to decrease the spill, the upper portion of the net spill at the ditches would probably increase to somewhat negate the improvement.

The capacity of the double box culvert on the west side of the valley will be significantly exceeded during the 100-year event. The 93 roadway will be overtopped to the east of the box culvert because of the narrowing valley section. This, coupled with the cross slope of the super elevated road, should direct most of, if not all, of the flood waters to the west valley floodplain below, and not to the north along Highway 93, except for the local irrigation lateral and drainage ditch culvert on the west side of Highway 93.

Floodplain Characteristics between Highway 93 and the Flatirons Levee (Drawing 5)

For the most part, significant South Boulder Creek flood events are carried in two paths, one on the east side of the valley in the main channel, and the second, carrying the majority of extreme floods, in the left or West Valley Overflow route along the South Boulder and Dry Creek No. 2 ditches. Generally the west side of the valley is lower, except where the flow approaches the Flatirons Levee and is diverted east to the main channel. Because of the elevation differential, and locations where pits have been created in the floodplain, there is some risk that additional flow could be directed to the west side of the valley from the main channel below Marshall Road.

Upper and Middle Flatirons Levee Area (Drawing 5)

The distinguishing features here include the upper portion of the levee which forces water back to South Boulder Creek, the middle levee section which sustains this deflection of flow, the adjacent Dry Creek Ditch No. 2 which conveys the ditch flow and keeps some of the west bank floodplain flow from going back to South Boulder Creek.

If the upper portion of the levee were to be breached or overtopped, most West Valley flow would continue on the west side to the approximate location of the Viele Channel west of the Foothills Parkway and Highway 36 Interchange. If the middle portion of the levee were to be breached, we would expect a smaller increase in spillage to the interchange than if the upper levee breached.

The Middle or Highway 36/South Boulder Main Channel Splits (Drawings 5 and 6)

Most of the flood flow in the West Valley Overflow drops back into South Boulder Creek by the Middle Flatirons Levee (see element 1513), due to lack of West Valley Overflow carrying capacity and the lower elevation of South Boulder Creek. For the 100-year event, the model shows the majority of the flow in South Boulder Creek (approximately 1800 feet upstream of Highway 36).

Analysis has shown significant 100-year spillage from South Boulder Creek back to the West Valley Overflow to begin about 500 feet upstream of Highway 36. (See element 261.) This spill is controlled by several components including: 1) the Highway 36 main stream bridge and the adjacent downstream McGinn Ditch Diversion, 2) the topography in the actual split area which is approximately 180 to 430 feet west of the creek centerline, and 3) the West Valley Overflow floodplain hydraulics and water surface profile which is controlled by the topography and roughness characteristics from the split area west for about 1200 feet.

Aggradation of the main channel area could lead to degradation of the open space area and increased flows to the West Valley. This aggradation could potentially be caused by upstream sediment movement and limited transport capability of the bridge area channel hydraulics and the McGinn Ditch, or by erosion of the overbank spill zone. Permanent transfer of the main channel to the West Valley is possible, but not likely. However, some increase in spillage appears likely with time given present conditions.

Flow arriving at the area of Highway 36 Bridge over the main channel of South Boulder Creek can potentially spill to the northwest. There are three major and several minor routes which the flow can take:

1. Main Channel. The main channel route conveys flow in a largely riparian cottonwood grove floodplain which has a mixture of open space, agriculture, residential, and commercial uses. As the main channel passes by the Wellman Ditch additional spills to the West Valley occur through a residential area and the golf course (element 237, Drawing 7). Below Arapahoe, the Leggett Canal to the Valmont reservoirs (Hillcrest, Valmont, Leggett) can also carry flood flows (236, Drawing 8). Also, there is another potential spill to the west to Dry Creek Ditch No. 2 near the railroad tracks, which has not been evaluated herein due to complex backwater analysis and perceived likely low magnitude.

2. Direct return to South Boulder Creek: Dry Creek No. 2, Viele, and the Anderson Ditch. The South Boulder Creek spillage upstream of Highway 36 that flows to the northwest would be joined by flows from Dry Creek Ditch No. 2.

   There are three modest conveyance systems which will carry an initial portion of the flow across Highway 36 and, for the most part, back to South Boulder Creek just below South Boulder Road. The first 220 cfs would be conveyed in the Dry Creek Ditch No. 2 box culvert under Highway 36 (263 and 376, Drawing 10), and via an irrigation ditch to a spill structure (375) near South Boulder Road which would shed most of the flow to the New Anderson Ditch, which subsequently could spill to Viele (378). Greater spillage flow from South Boulder Creek, on the order of 500 to 800 cfs, will be intercepted by the Viele drainage system (265 and 1267) adjacent to the Foothills Parkway Interchange and conveyed under Highway 36, and then combine with the spillage from the lower Anderson Ditch and the Dry Creek Ditch No. 2, and flow under South Boulder Road to South Boulder Creek.

   Greater South Boulder Creek spillage would overtop the Viele system and flow onto the freeway (292). Some portion of this spillage and local drainage flows can be conveyed by the Anderson Ditch to the east to South Boulder Creek, subject to some spillage to the north at several points, the first and most significant of which would occur near the Anderson culvert under the Highway 36 eastbound on ramp (383).

3. West Valley Overflow. Greater South Boulder Creek spillage (from 700 to 1000 cfs) would flow onto Highway 36 (360) and pass by the Anderson Ditch, and then largely overflow the Highway 36 barrier (352 and 1812) and

discharge to the north of the freeway on the west side of Foothills Parkway and travel north, along the west side of Foothills Parkway.

At the intersections of Foothills and Baseline (Drawings 7 and 9) flow is first retarded by two small storage ponds (356 and 398, Drawing 9). Flows such as the 100-year flood can follow any one of seven routes. Three potentially leave the watershed along Foothills Parkway to the northwest, two flow east on the lanes of Baseline and split again to the north through the Country Club Park neighborhood, and the last two either by the culverts under Foothills or over the roadway to the east storage.

The east storage first discharges by a box culvert (308) which has been partially obstructed by an earth dike to form a "poor man's" hydraulic control. This culvert under Baseline directs flow to the Crossover Ditch, on the north side of Baseline, which then carries flow easterly to Dry Creek Ditch No. 2 near 55th. However the east storage spills (396) at moderate flows to Baseline, which then can contribute to and join spillage from the Crossover Ditch, and add to the spillage through the Country Club Park subdivision. Reference documents refer to drainage problems in these areas. These spillages eventually go to the Wellman Ditch adding to runoff already being carried from Bear Creek and probably from the three South Boulder Creek spillages following Foothills.

Much of the Crossover Ditch is a levee situation of questionable stability. We have assumed the Crossover Ditch could carry flow to culvert full-flow capacity based on approximate hydraulics. If the Crossover Ditch breached, most of the flow could go north increasing the flow through the subdivision, and then to the Wellman. Regardless of Crossover Ditch breaching, the flow in the Wellman would be about the same.

The Crossover Ditch joins with Dry Creek Ditch No. 2 flow crossing Baseline, then the combined ditch flows northeast and then north along the west side of 55th as Dry Creek Ditch No. 2 in a boulder, wall-lined channel.

At 55th and the Wellman Ditch (Drawing 11), Dry Creek Ditch No. 2 and the Crossover Ditch flows join the Wellman Ditch except for minor flows conveyed in the Dry Creek Ditch No. 2 undercrossing pipe (1401).

The Wellman Ditch crosses Bear Canyon Creek in a combined diversion and spill structure that can potentially bring transbasin flood waters into the South Boulder Creek watershed. However, we have assumed this is not the case, per sponsors' direction, standard practice, and the knowledge that significant flood waters would be entering the Wellman from South Boulder Creek overflows to the West Valley. Drawing 11 reflects some of the key details of these inflows. The westerly overflow at Baseline and Foothills, element 335, can convey significant flows to the Wellman upstream of Foothills. This flow can go down the Wellman (limited by the Foothills culvert and downstream Wellman capacity), but can also overflow to Bear Canyon Creek. Elements 333 and 334 (the Baseline and Foothills overflow to Foothills) convey flows up to the capacity of the inlets and a 36 inch storm sewer to the Wellman. For flows greater than storm sewer capacity, flood waters drain mostly to Bear Canyon Creek.

The Wellman Ditch acts as a major collector channel for other West Valley Overflow flow paths. The collected overflow flood waters in the Wellman simultaneously discharge with a small flow to South Boulder Creek (200 to 500 cfs), then to spills, in rough order:

a) north to the golf course on the east side of 55th (element 390)
b) north to the subdivision immediately west of 55th (element 324) which subsequently (element 323, Drawing 11 and element 1337, Drawing 7) splits twice again to the golf course and to the north (most of which finds its way to Dry Creek Ditch No. 2 but could overflow some to Boulder Creek)
c) north to the subdivision along Merritt Drive, which then drains to both Dry Creek Ditch No. 2 (West Valley Overflow) and Boulder Creek

A major portion of West Valley Overflow (element 320, Drawing 7) joins the South Boulder Creek spill through the golf course (element 1906). The combined spillage (element 1909) would move through the industrial and commercial area toward the outfall Dry Creek Ditch No. 2, which at this location is a major flood conveyance.

SUMMARY CONTROL FEATURES

The direct flow control features starting at the Highway 36 main channel spill are tabulated in Table II-1, with annotation as to the relative effect on the overflow and local drainage distribution. High [H] denotes a control that is a major influence on overflow magnitude and drainage problems. Moderate [M] denotes control that moderately affects the intensity of the overall problem and local flooding characteristics. Lesser [L] denotes that the particular component or subsystem is important to understanding characteristics of the system, but whose accurate simulation may have only small effects on the overall performance and flood hazard recognition.

Table II-1

FEATURES DIRECTLY AFFECTING WEST VALLEY OVERFLOW SPILLAGE AND LOCAL DRAINAGE

SOUTH BOULDER CREEK

Rail line storages	[H]
Gross Reservoir	[H]
Two spills above Highway 93	[H]
Spill above Highway 36	[H]
Spill above Arapahoe Road to and including Wellman Ditch	[H]
Channel, diversion, and backwater characteristics downstream of Highway 36	[M]

DRY CREEK NO. 2 DITCH

Culvert under Highway 36 including adjacent ditch and local drainage culverts under Highway 36	[H]
Spill structure and crossing of South Boulder Road	[H]
Ditch, culvert, pipe and related storm sewers, minor spills, South Boulder Road to downstream of Baseline	[L]
55th Ditch from Baseline to Euclid	[M]
55th Ditch from Euclid to downstream of the Wellman	[H]
Downstream of 55th	[M]

VIELE DRAINAGE SYSTEM

Upper Basin conveyance network	[M]
Upper Viele storages	[M]
Viele storages and culverts at Interchange	[H]
Lower Viele outfall channel	[M]

ANDERSON DITCH SYSTEM

Diversion and spillage from Bear Creek	[M]
Anderson conveyance system from Broadway to Interchange	[L]
Anderson Ditch culvert entrance and multiple pipe conveyance under Interchange, and blockage issues	[H]
Anderson Ditch system east of Foothills through off ramp area to next culvert downstream, through likely spill zone	[M]
Anderson Ditch system east to spill zone	[L]
Anderson Ditch spill to Viele	[M]
Anderson Ditch to South Boulder Creek	[L]

WEST VALLEY OVERFLOW

Highway 36 from Viele culvert west to Basin Divide	[M]
Lower drainage network through Highway 36 and downstream along Foothills to near Baseline	[M]
Foothills and Baseline Intersection including two storages with controls, storm sewers, roadway grades	[H]
Westerly subbasin drainage characteristics influencing discharge characteristics to South Boulder and Bear Creek watersheds	[M]
Crossover Ditch from Foothills to *Dry Creek No. 2 along Baseline*	[H]
Lower Flatirons levee and culvert under the on ramp to Viele	[M]
Street drainage and subdivision characteristics north of Baseline	[M]
Street drainage and subdivision characteristics north of Wellman	[M]
Golf course and industrial/ commercial area north of Wellman	[M]

WELLMAN DITCH

Bear Creek diversion and canal crossing to and including Wellman box culvert under Foothills	[H]
Combined hydrologic inflows and flow spill hydraulics along the Wellman	[H]
Canal flow and levee *characteristics from Foothills to* 55th	[H]
Canal flow and levee characteristics from 55th to South Boulder Creek	[H]
Foothills storm sewer and street flood water conveyance characteristics and flow/spillage to Wellman	[M]

HISTORICAL FLOODS AND HYDROLOGY COMPARISON

The G&O study presented gage data for South Boulder Creek at Eldorado Springs for peak flows greater than 1,000 cfs. These data appear to be taken from the 1969 Corps of Engineers Floodplain Information Report, except that the May 7, 1969 is updated from "preliminary estimates." We have checked flow data through 1999 and there have been no additional flood peaks reported greater than 1000 cfs.

TABLE II-2

Historical Peak Discharges on South Boulder Creek at Gaging Station Near Eldorado Springs[1]

Drainage Area: 109 Square Miles
Location: 6.7 miles downstream from Gross Reservoir
and 1 mile west of Eldorado Springs

Peak Discharges[2,3]

Date of Occurrence	CFS
3 Jun 1895	1130
9 May 1990	1100
20 Jun 1909	1340
24 May 1914	1240
6 Jun 1921	1440
2 Sep 1938	7390
21 Jun 1947	1290
6 Jun 1949	1430
18 Jun 1951	2370
4 Jun 1952	1080
7 May 1969	1690

[1] Records taken from United States Department of Interior Geological Survey, "Water-Supply Papers 1310 and 1680" and the yearly "Water Surface Records for Colorado."

[2] Only peak discharges which exceeded 1,000 cubic feet per second (cfs) are listed.

[3] There have been no events reported greater than 1,000 cfs through 1999.

The 1969 Corps study "Flood Plain Information, Boulder and South Boulder Creek" used these data (through 1969) as its basis for hydrology using a Log-Pearson Type III statistical methodology. A 100-year flood of 5000 cfs was recommended for South Boulder Creek.

The 1973 R.W. Beck study "Major Drainageway Planning, South Boulder Creek" used the 1969 flood event data, including rainfall and the Eldorado gage data to determine unit hydrograph coefficients. Then they used NOAA rainfall statistics, assumed a design rainfall event below Gross Reservoir, and routed subbasin hydrographs down the stream. This technique allowed prediction of discharges along the stream as various streams joined in. Their 100-year flood estimates for South Boulder Creek varied from 4300 cfs at Eldorado Springs, 5300 cfs at Highway 36, and 5000 cfs above the confluence with Boulder Creek. Based on assumed 1990 development conditions the flows increased to 5600 cfs at Highway 36 and 5400 cfs above the confluence, with peak discharges from Marshall Gulch of 2300 cfs and Viele Gulch of 900 cfs.

Thus, the studies support a 100-year discharge at Eldorado Springs in the 4300 to 5000 cfs range. However the Beck study assumed a constant discharge from Gross Reservoir of 300 cfs, rather than analyzing a rainfall runoff flood above Gross.

The latter Corps hydrology, which was used in the 1986 G&O study, was based on the SWMM computer program. In that model, they assumed rainfall flooding in the entire watershed and routed the flow through Gross Reservoir, assuming the reservoir was full to the spillway. G&O reports a 100-year flood at Eldorado Springs of 4800 cfs, which is similar to the 5000 cfs 1969 Corps statistical determination.

EXAMPLE FLOOD EVENTS

Two events are of particular interest, August 31 to September 4, 1938, because it is the largest historical event on South Boulder Creek and gives graphic evidence of the stream's capability to erode, scour, and move sediment and debris; and May 4 to 8, 1969, because it is a recent event, is of frequent recurrence interval, and actually flooded Highway 36.

31 August - 4 September 1938

The following excerpts from the Corps' 1969 report described the event:

> "This storm produced general rains over all of eastern Colorado. The largest amounts of precipitation occurred in the mountains where over 6 inches was reported west of Eldorado Springs. Boulder reported 3.62

> inches of precipitation from 31 August to 4 September with 2.32 inches falling during 2 September. Eldorado Springs had 4.42 inches of rainfall. Approximately 80 percent of the total precipitation falling in the South Boulder Creek basin fell in the late afternoon and evening of 2 September. The resulting flood, with a peak discharge of 7,390 c.f.s. arrived at Eldorado Springs at 10:00 p.m. on 2 September. The peak gradually subsided as the flood moved downstream. A maximum discharge of 4,410 c.f.s. occurred near the mouth of Boulder Creek at noon on 3 September. Several buildings in Eldorado Springs were destroyed as a result of the flood eroding away their foundations. Numerous bridges were destroyed and the valley from Eldorado Springs to Boulder Creek and down Boulder Creek to the St. Vrain Creek were in shambles. This flood is the highest recorded flood on South Boulder Creek."

Phyllis Smith reports in "History of Floods and Flood Control in Boulder, Colorado" on this event, with extensive photographs (by the Boulder Historical Society) of the damage in Eldorado Springs. They depict destruction of buildings and movement of rock in the 6 inch to 2 feet range. Ms. Smith notes that South Boulder Creek flooded again the following year, but apparently there is no reported gage data.

We believe that there is sufficient watershed below Gross Reservoir to allow such events, including large scale sediment and debris movement.

4-8 May 1969

The Corps also reported on this event in their 1969 study.

> "This was also a flood of long duration general storm. Precipitation was heaviest in the mountains; part of it being snow. In the Boulder and South Boulder Creek basins the rainfall continued at a moderate rate for nearly four days. Total precipitation for the storm amounted to 7.60 inches at Boulder and 9.34 inches at the Boulder Hydroelectric Plant located about 3 miles up the canyon from Boulder. Precipitation amounts totaled 8.11 inches at Eldorado Springs and 10.05 inches at Gross Reservoir on South Boulder Creek. Peak flooding occurred on the 7th of May at Boulder and Eldorado Springs. Preliminary estimates based on the gaging records, indicate a peak discharge of 1,150 c.f.s. occurred on Boulder Creek. Flooding extended over large portions of the flood plain starting at the junction of the two streams near Valmont Road and extending downstream through the remainder of the Boulder Creek study reach. Evidence of two bridge failures is illustrated.

> The gaging records show that floods the size of the May 1969 flood occur on an average of about once every five years on Boulder Creek and about once every seven years on South Boulder Creek."

The 1986 G&O study reports the 1969 event flow as 1690 cfs, and states that the recurrence interval is approximately once every seven years. We obtained calibration records for the Eldorado Gage. There were notes indicating that the boulders used as a control sill in the bed of the river moved.

Ms. Smith reports extensively regarding this event. Numerous streams, including Bear Canyon Creek, flooded. A photograph of South Boulder Creek by the Boulder Daily Camera shows the wide floodplain of South Boulder Creek. Regardless of location, flooding of this width would correlate to spills at Highway 93 and 36, based upon hydraulic analysis by others and TEA.

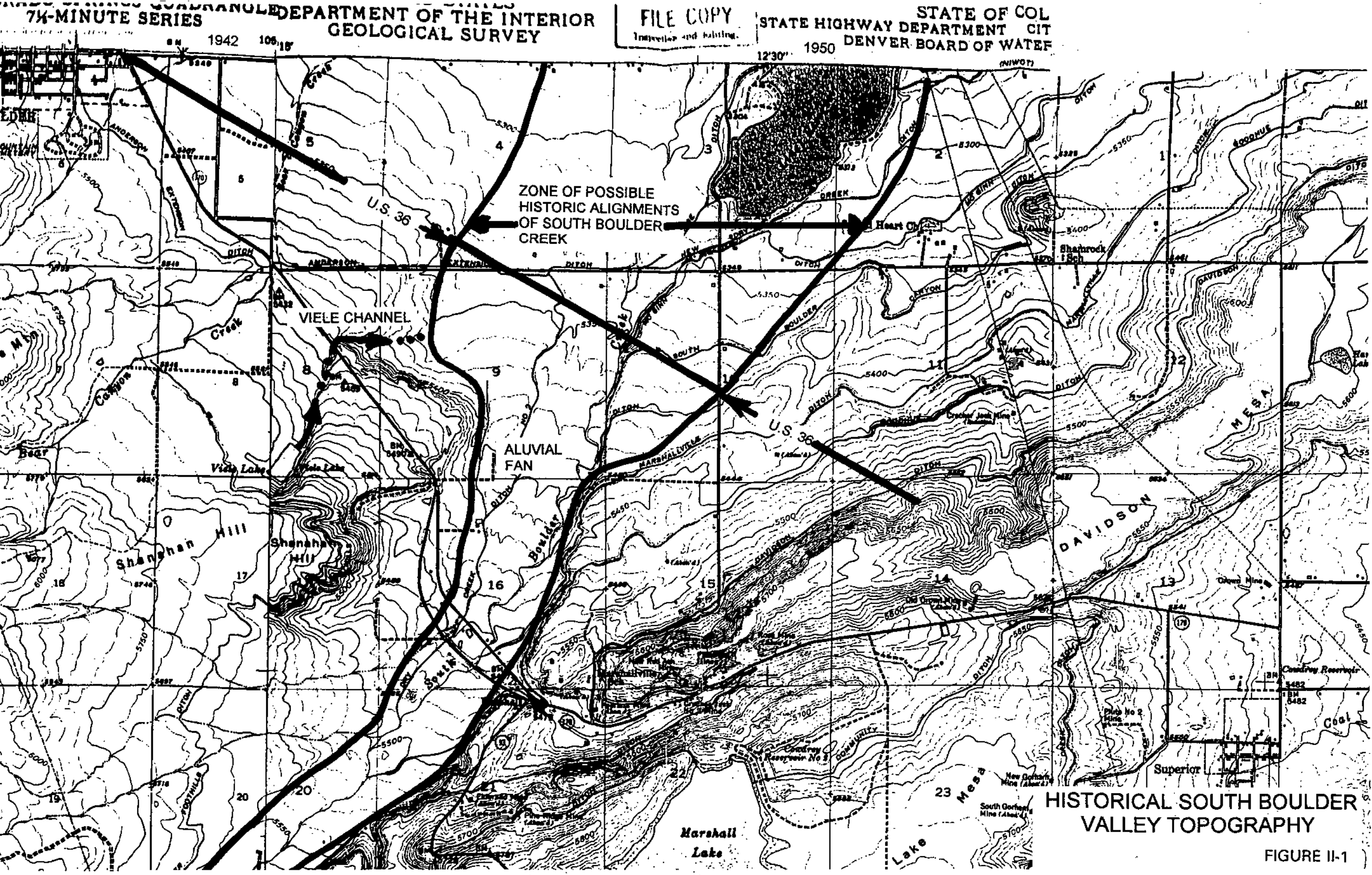
In the Wright McLaughlin report Urban Storm Drainage; Major Drainageway Planning, South Boulder, September 1970, it was reported that Highway 36 was overtopped and traffic halted for more than a day " . . . in the Lower Viele Basin." The study denotes the need for improved drainage facilities to take care of flow from Viele and Anderson Ditch, and future areas of urbanization.

In our further research, we identified the CDOT project manager, Ken Morrow, who observed the construction of the barrier. He was an eyewitness at the site during the flood. He indicated that the barrier was overtopped by flood waters, without damage, in the same area identified by Love and this study. Overtopping occurred for a brief period, followed by gradual draining through the openings in the barrier and the drainage network. Mr. Morrow reported that he was criticized by highway safety critics for allowing the openings.

We believe it is highly likely that a combination of local drainage from the Anderson Ditch tributary area, Viele, other local tributary areas, and spillage from South Boulder Creek led to this overtopping. We doubt that local flooding alone could lead to a shutdown in excess of a day.

GEOMORPHOLOGY

Figure II-1 is a compilation of 1950 and 1942 USGS topographic maps of South Boulder Creek for the reach of immediate interest. The topography of the valley bottom illustrates alluvial fan tendencies as evidenced by the fan shaped contours and numerous shallow stream patterns across the valley. We have delineated a zone where it is physically possible for flood waters in the valley bottom mainstream just above Highway 93 to disperse laterally across the valley bottom. Note that the South Boulder Creek main channel is on the right or east side of the



HISTORICAL SOUTH BOULDER VALLEY TOPOGRAPHY

FIGURE II-1

valley, and that Dry Creek Ditch No. 2 at first follows the left or west side of the valley until it crosses the present location of Highway 36, where it goes down the middle of the valley. To the left or west side of the ditch, the contours are lower than the ditch location. Thus flood flows could make it to the west side of the valley once they were higher than Dry Creek Ditch No. 2, which is a likely occurrence in times of flood.

There are two geologic zones of alluvium, based upon USGS geology maps and report. The large center zone, denoted as Piney Creek Alluvium, is primarily associated with alluvium coming from the mountain area drained by South Boulder Creek and is related directly to "modern stream floodplains." The adjacent Broadway and deeper Louvers Alluvium have surface grades that are generally higher than the modern floodplains, but can have beds below the modern floodplain. They illustrate a broad potential floodplain. The Piney Creek Alluvium coupled with the historical topography illustrates a much wider potential floodplain than the FHAD or FIRM maps and the tendency for the streams and floodplains to migrate.

There is a significant tendency for the main channel to spill to the West Valley above Highway 93 and Highway 36. If a major event were to transport sediment from the mountains, we believe this tendency would increase. The east to west valley tendency occurs downstream of Marshall Road and in most of the lower South Boulder Creek floodplain.

Sediment transport potential for long term movement of sediment and bed change is slowed by Gross Reservoir, which traps sediment from a majority of the watershed. However, peak flood flow rates at the mouth of the canyon are unlikely to be significantly reduced by Gross Reservoir because of the steep, narrow, and large area below the reservoir. Therefore the stream at flood stage has nearly the same capacity to transport large sizes of material as in pre-Gross conditions, but the total volume of sediment would be reduced.

Further, there are numerous local effects which could lead to deposition and could lead to migration, such as at bridges, diversions, and low capacity channel sections. Also there are reaches where migration is potentially more likely, such as in the washing pits and at the bank upstream of Highway 36 where the spill presently occurs. These tendencies can affect the flow splits assumed herein, and thus affect the hydrology of South Boulder Creek and West Valley Overflow flows and duration of flooding.

The hazards associated with breaching or overtopping of the upper or middle segment of the Flatirons Levee need to be carefully analyzed for the aspect of major stream migration to the West Valley and for related worsening of the flood hazard for extreme events.

We expect that the aspect of sediment transport and potential adverse stream migration can be addressed with reasonable management efforts and modest refinements of design components and mitigation measures, such as land grading forms, levee protection, critical conveyance improvements and overflow erosion control, rather than with massive channels, groins, or other extreme measures.

SECTION III

PRECIPITATION

OVERVIEW

The South Boulder Creek hydrology study is concerned with flooding in Boulder from the perspective of peak flows and volume. Peak flows are dominated by rainfall in the area below Gross Reservoir, located approximately 18 miles upstream of South Boulder Creek's confluence with Boulder Creek. Since some of the solutions to potential flooding in Boulder might involve storage, the study is also concerned with runoff volume from the entire watershed. Therefore, models for the design storms use rainfall appropriate to locations above and below Gross Reservoir.

The watershed was divided by elevation ranges into rainfall zones. Data for each zone's rainfall were derived from NOAA statistics as described below. The four zones of the study were up to 6000 feet, (Zone 1); 6000 to 8000 feet (Zone 2); 8000 feet to 10000 feet (Zone 3); and 10000 to 12000 feet (Zone 4). Zone 2 was further divided into two sub-zones: below Gross Reservoir and above. The approximate percentages of the total watershed area taken by each zone are presented in the following table.

Table III-1
Watershed by Elevation Zone

Zone	Elevation Range	Percentage of Watershed
Zone 1	Up to 6000 feet	12.68
Zone 2 Below Gross	6000 to 8000 feet	18.64
Zone 2 Above Gross	6000 to 8000 feet	5.42
Zone 3	8000 to 10000 feet	43.78
Zone 4	Above 10000 feet	19.48

For 10-, 50-, 100-, and 500-year design storms for South Boulder Creek, the study used point rainfall statistics published by the National Oceanic and Atmospheric Administration (NOAA) in the *NOAA Atlas 2: Precipitation-Frequency Atlas of the Western United States, Volume III - Colorado*. The rainfall was then adjusted for Area Reduction Factors from the National Weather Service (NWS) Technical

Procedure No. 29 (TP 29), *Rainfall Intensity-Frequency Regime, Part 1 - The Ohio Valley*.

This study of area reduction factors was based on many large watershed rain gage networks in the Midwest, East Coast, and one network in California. While the relationships are reasonable and the best available as will be elaborated later, there are no proven relations in this region and the original study shows wide scatter. Also, while the large network was used for the 6 hour and 24 hour relations, the 1 hour relation is based on one network.

Design rainfall above Gross Reservoir is adjusted by Area Reduction Factors (ARF) based on the entire watershed area (135.7 square miles). Design rainfall below Gross Reservoir is adjusted based on the area downstream of the reservoir (42.5 square miles). The rainfall over the entire watershed using the ARF for the entire area was also calculated and subsequently used to further reduce the highest zone of rainfall. This procedure then resulted in having both the critical rainfall for peak flows below Gross in the lower watershed, and the correct total volume.

The resulting rainfall duration curve was rearranged by the commonly accepted practice of placing the peak value at one-third of the total rainfall duration or, for the twenty-four hour rainfall, at time eight hours. Less critical rainfall was rearranged in decreasing magnitude values around the peak time.

The end result is a rainfall pattern that is likely to be critical for the entire watershed and downstream of Gross. Realistically, this procedure may result in a 100-year flood that is slightly conservative, as in the real world each critical duration is not likely to have the same chance of occurrence. However, a study referred to us by NOAA does indicate that this region experiences a high likelihood of simultaneous critical durations (NOAA Technical Report NWS 27, *Interduration Precipitation Relations for Storms - Western United States*). Thus our opinion is that the rainfall events herein are realistic and reliable for purposes of flood hydrology, floodplain mapping, flood warning and proofing, and design flood control/facilities and waterway structures.

RAINFALL SPECIFICS

The following describes the specifics for determining the point rainfall, area reduction factors, adjusting the rainfall for the area reduction factors, and designating the rainfall event pattern.

Point Rainfall for the 10- to 100-Year Event

Point rainfall values for 360 minute and 1440 minute durations were determined from *NOAA Atlas 2* isopluvial maps at the centroid of each of the four elevation zones. Sixty minute duration rainfall values for Zones 1 - 3 were taken from *the Boulder County Criteria Manual*, and are NOAA based. Values for 120 minute, 180 minute, and 720 minute durations were calculated from depth-duration diagrams in *NOAA Atlas 2*. For lesser duration values (5 minute, 15 minute, and 30 minute), adjustment factors found in *NOAA Atlas 2* for obtaining n-minute estimates from one-hour values were used.

Point Rainfall for the 500-Year Event

In order to determine a value for the 500-year rainfall, TEA extrapolated from NOAA's statistical rainfall data. The 15 minute, 30 minute, 60 minute, 120 minute, 360 minute, 720 minute, and 1440 minute data values were obtained. Four sets of data (using one of the time intervals, for example, the 30 minute interval, at 2, 10, 50, and 100 years) were each projected to the 500 year value, for each zone, by four methods:

a) Taking logs of the four sets of x and y values, and using a regression analysis model to arrive at the 500 year value; the equation for the regression was in the form of $Y = \text{constant} + \text{constant} * \log X$

b) Graphing the four sets of data on probability paper

c) Graphing the four sets of data on Gumbel Distribution paper

d) Graphing the four sets of data on Log Pearson III paper

Projected values for the 500 year rainfall determined by each method differed slightly. At the October 14, 1999 meeting, the sponsors concurred with the choice of the Log Pearson III values for the projections as it was noted that Log Pearson III is perhaps the most widely accepted procedure of the four methods used.

Application of Area Reduction Factors

Area reduction factors are a function of both duration and location. Data points for areas below and above Gross Reservoir were obtained directly from the depth/area curve of the *NOAA Atlas 2*. Point values for the 120 minute and 720 minute values were interpolated from the curve. The following table presents the key area reduction factors values used.

Table III-2
Area Reduction Factors vs. Duration

	30 minutes	60 minutes	120 minutes	360 minutes	1440 minutes
Below Gross Reservoir	0.73	0.83	0.873	0.937	0.950
Above Gross Reservoir	0.58	0.69	0.758	0.873	0.927

We attempted to apply equal ARF increments for given duration ranges to rainfall data points. This produced questionable results with a flat, blocky pattern. Reasoning that both rainfall data and area reduction factors are points on smooth curves, we found mathematical functions which fit the rainfall data and area reduction factors. Since the area reduction factors never go to zero, we estimated the curve intercepts for zero or infinitesimally small areas to determine the best curve fit. The function for the area reduction factor above Gross Reservoir is:

$$ARF_a = 0.38 + 0.5630*T/(52.65+T), \qquad \text{III-1}$$

where T is the time in minutes;

the function for the area reduction factor below Gross Reservoir is:

$$ARF_b = 0.35 + 0.6104*T/(17.67+T) \qquad \text{III-2}$$

For curve fitting the rainfall data P, precipitation in inches, the resulting mathematical equations are in the form of an equation for a hyperbola. Equations found for rainfall in each of the zones are:

Zone 1: $P = 3.249*T/(17.06+T) + 3.568*T/(1424+T)$ III-3

Zone 2: $P = 2.834*T/(15.27+T) + 7.053*T/(4171+T)$ III-4

Zone 3: $P = 2.395*T/(14.65+T) + 4.504*T/(1725+T)$ III-5

Zone 4: $R = 2.161*T/(16.30+T) + 3.227*T/(1716+T)$ III-6

Graphs illustrating example area reduction factor and rainfall curve fits are found in Figure III-1 and Figure III-2. The graphs illustrate curves in Zone 1. A greater difference between NOAA original rainfall points and the TEA design storm values was observed for higher elevation zones, which have larger area reduction factors.

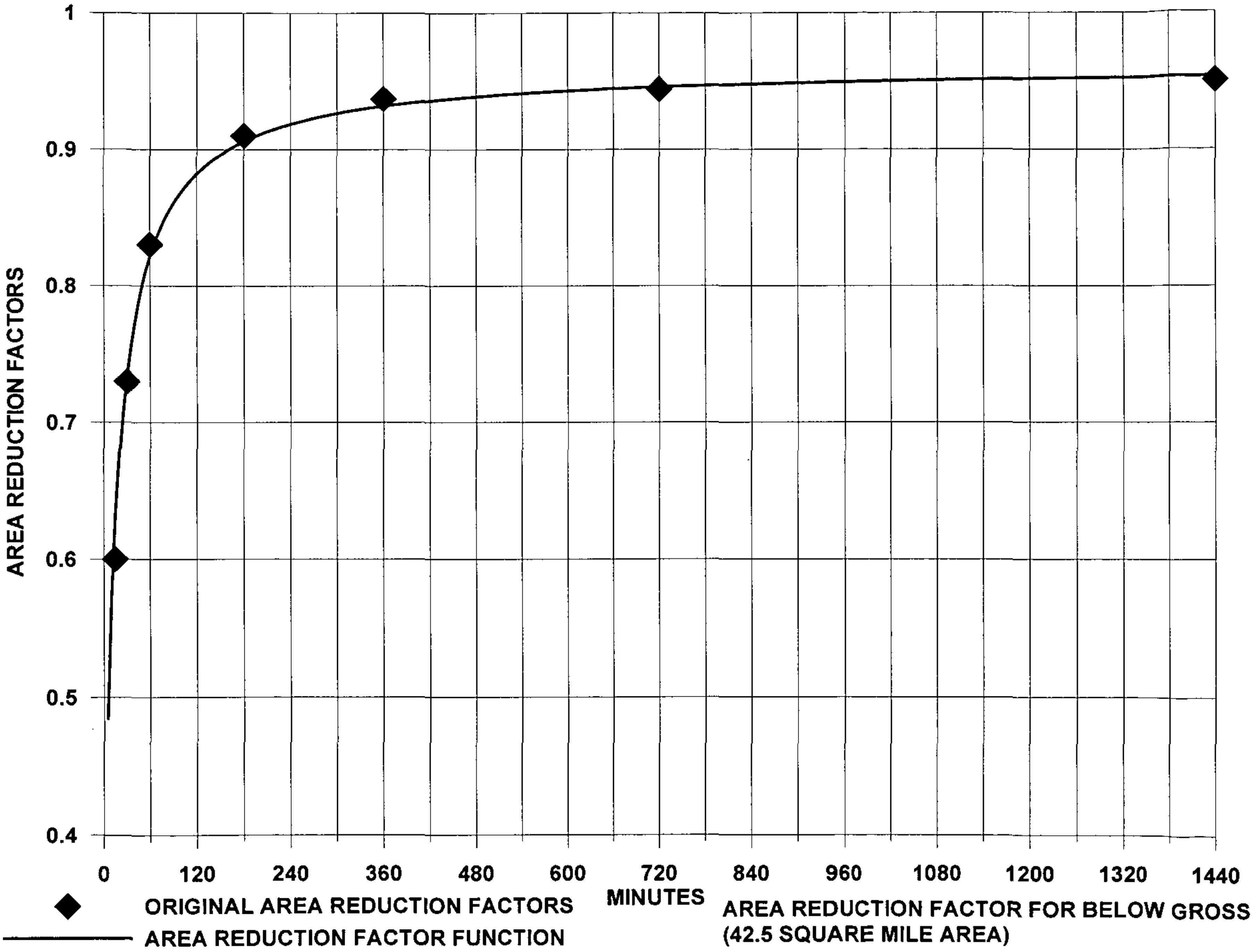
Temporal Arrangement (Event Rainfall Patterns)

TEA maintained the statistical integrity of NOAA rainfall data in simulations of the various storms by embedding the values for all rainfall events (e.g., 15 minute, 30 minute, etc.) in the 24-hour storm. TEA chose the six-hour rainfall as the critical event in the watershed's 24-hour storm, and placed its peak at eight hours. Typically, hydrology texts (e.g., Viessman, Knapp, Lewis, and Harbaugh, *Introduction to Hydrology*, and Bedient and Huber, *Hydrology and Floodplain Analysis*) specify putting the storm's peak at a point between ⅓ to ½ of the storm's duration.

TEA created a spreadsheet which, once mathematical functions for rainfall and Area Reduction Factors were found, produced corrected rainfall values for each of 288 five-minute increments in the 24 hour period for each rainfall Zone, for each of the 10-, 50-, 100-, and 500-year storms. The spreadsheet was designed to include algorithms which would:

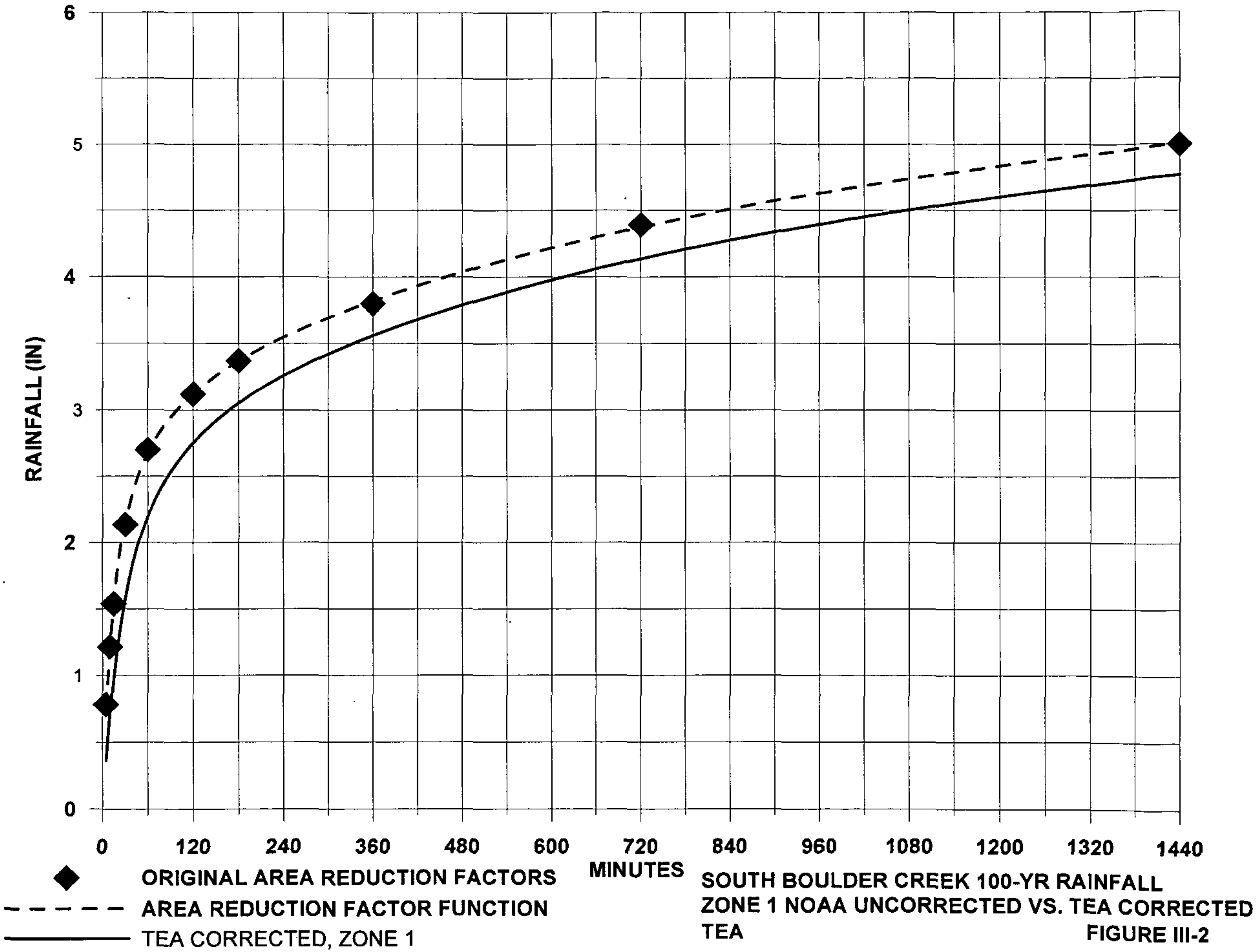
- create Area Reduction Factors and rainfall values, once the curve functions were entered into the spreadsheet, for each five-minute increment
- multiply Area Reduction Factors and rainfall values to produce TEA corrected rainfall for each five-minute increment
- subtract earlier from adjacent later values to determine the incremental increase of rainfall per five-minute interval
- rearrange each of the 288 incremental rainfall values in ascending order with peak at eight hours
- check to verify that NOAA statistics were maintained at all time periods in the storm, from 15 minutes to 24 hours (e.g., 2 hours, 3 hours, etc.)

The resultant design rainfalls are tabulated in the model input. The 100-year rainfall for Zone 1 is shown in Figure III-3. Note that the curve represents a series of five minute incremental values with each increment beginning at the end of the preceding five minute value.



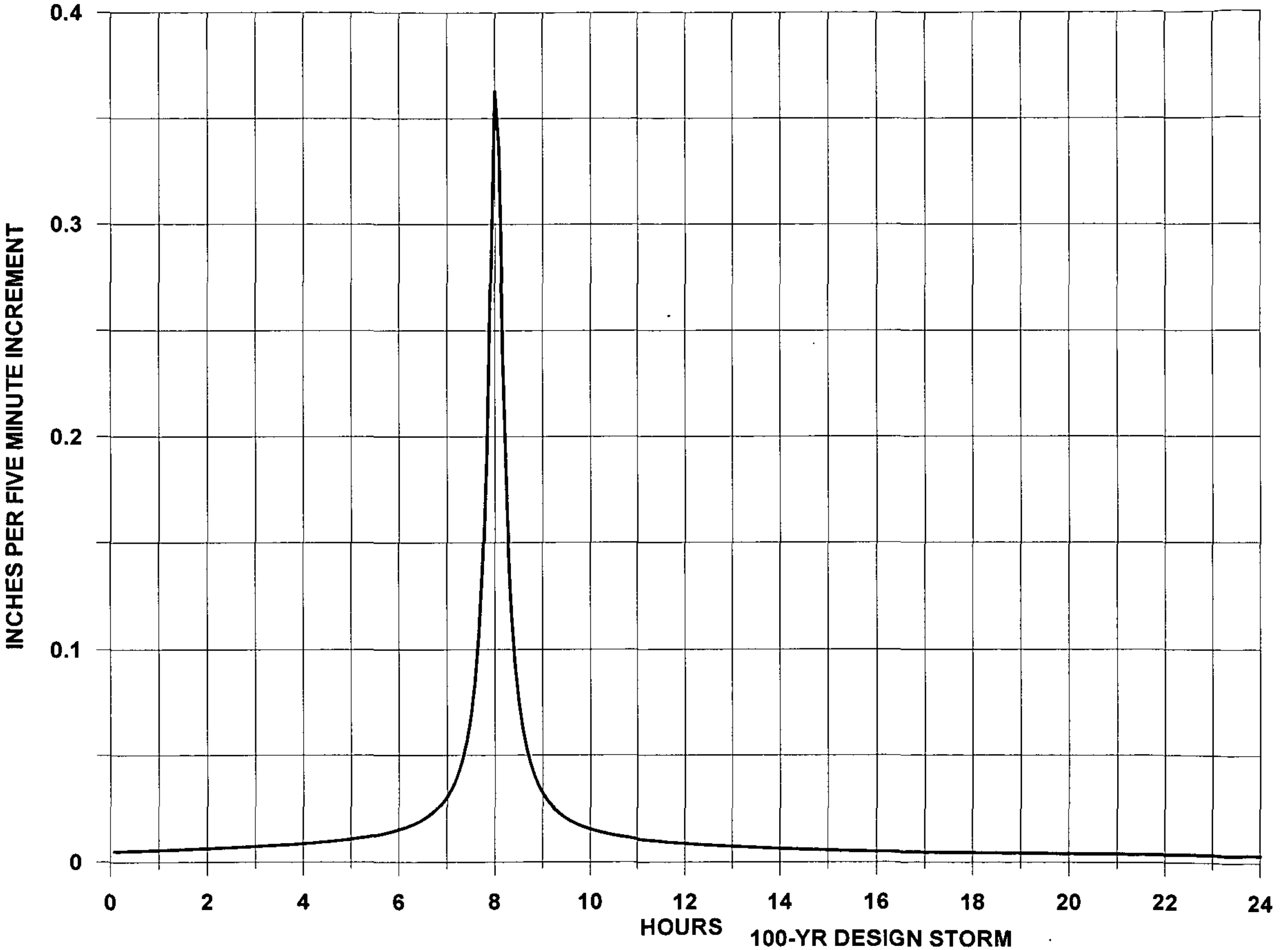
AREA REDUCTION FACTOR FOR BELOW GROSS
(42.5 SQUARE MILE AREA)
TEA

FIGURE III-1



SOUTH BOULDER CREEK 100-YR RAINFALL
ZONE 1 NOAA UNCORRECTED VS. TEA CORRECTED
TEA

FIGURE III-2



100-YR DESIGN STORM
ZONE 1
TEA

FIGURE III-3

Comparison

In a comparison of UDFCD, Corps, and TEA design storms for South Boulder Creek, TEA found that Corps rainfall was significantly lower. The Urban Drainage storm had the highest peak rainfall, possibly since the 15 minute Area Reduction Factor for that storm was devised in a more approximate manner. For Zone 1, TEA's design rainfalls compared to those of the Corps are as follows: thirty minute (1.56 vs. 1.38 inches), one hour (2.24 vs. 1.73 inches), two hour (2.72 vs. 2.38 inches), and three hour durations (3.56 vs. 3.47 inches). Other than the peak values, the TEA values compare well with UDFCD/Boulder criteria.

AGENCY REVIEW

Please refer to Section VII for copies of the correspondence.

Henz Meteorological Services

On July 22 1999, TEA outlined its anticipated procedures for simulating rainfall volumes in a letter to Bill DeGroot of UDFCD. Bill DeGroot then forwarded the letter to John Henz of Henz Meteorological Services for his comments. The approach and details of determining design event precipitation were reviewed by Henz Meteorological Services. John Henz responded that the "basic premise" of the TEA approach "appears valid." He also recommended consideration of recent specific storms from July 8, 1998 and August 4, 1999 for possible modeling, discussed aerial and temporal distributions typically found in the watershed, and mentioned the importance of considering antecedent moisture conditions

Some sponsors felt that, considering John Henz's experience in observing area storm patterns, there would be valuable information added to the study by having him construct a design storm. All sponsors did not, however, commit to this additional expenditure. The sponsors concurred with the concept of using classical, well-established hydrology procedures, which have widespread acceptance and are defensible.

National Weather Service

Early in August 1999, TEA wrote to the National Weather Service (NWS) requesting advice about area reduction factors, NOAA rainfall data, storm peak placement and rainfall distribution, embedded NOAA events nested within the critical event, etc. When information was not forthcoming, TEA wrote again on September 9. The NWS response, emailed on September 29, included the following:

- NWS thought the approach of using one Area Reduction Factor for all values in each storm area "reasonable...based on local knowledge and professional judgment."

- NWS agreed that the TEA approach of using a 24-hour design event to assure that the entire watershed was responding was "reasonable."

- NWS suggested NOAA Technical Memorandum NWS Hydro 40, *Depth-Area Ratios in the Semi-Arid Southwest United States* (Zehr and Myers, 1984) in response to questions about the appropriateness of using TP 29 Area Reduction Factor curves in Colorado.

- NWS suggested NOAA Technical Report NWS 27, *Interduration Precipitation Relations for Storms - Western United States* (Frederick, Miller, Richards, and Schwerdt, 1981) for TEA concerns regarding temporal distribution.

- NWS suggested *Flood Hydrology Manual*, U.S. Department of the Interior, Bureau of Reclamation (1992) for questions concerning the aerial distribution of rainfall across subbasins in the larger basin.

Depth-Area Ratios in the Semi-Arid Southwest United States, NWS Hydro 40, used data from a network of concentrated gages in Walnut Gulch, Arizona to extrapolate Area Reduction Factors for areas throughout Arizona and in New Mexico. The authors commented that, as distance from the concentrated gages increased, they felt less confident of the values presented.

TEA contacted Raymond Zehr, one of the authors of NWS Hydro 40. Mr. Zehr, who has worked in Fort Collins for approximately 15 years, said that he would not recommend the use of the NWS Hydro 40 Area Reduction Factor procedures for a study of South Boulder Creek hydrology. He noted that his study area (Walnut Gulch, in southeast Arizona) and the South Boulder Creek watershed were both "dry," but similarity between the two areas was not apparent beyond that.

TEA noted a problem in NWS Hydro 40, in that the 100-year Area Reduction Factors did not change with the storm duration, that is, Area Reduction Factors clustered at the approximately 0.58 - 0.60 point for all 100-year values, regardless of rainfall duration. The Bureau of Reclamation, Mr. Zehr thought, was working with Area Reduction Factors for the Colorado Front Range and recommended an individual at the Bureau of Reclamation to contact for information. However the sponsors directed that we not pursue this further as the Bureau's work was more likely related to extreme events and under study.

The TP 27 report deals principally with accumulated probability (joint probability) for various duration rainfall events within or around critical duration storms. An earlier study, NOAA Technical Report NWS 21, *Interduration Precipitation Relations for Storms - Southeast States* (Frederick, 1979), more clearly explains the procedure for using the probability charts in both studies. TEA created tables of values produced by this method, and found some values unrealistically large. TEA also found that NOAA Atlas statistical values were not maintained. TEA noted a flaw in the study's definition of a storm's starting point: as TP 27 defines the storm's beginning point, important, adjacent storms separated by a few hours can be overlooked. Henz specifically suggested that this type of pattern (two rainfall peaks separated by a no rain period) is critical to this region. The NWS analysis would have missed this type of event.

Table III-3, from the TP 27 report, illustrates the probability that critical hour events will occur together. This table is read as follows, assuming that the six hour duration (the independent, ID, factor for the storm) is the most critical for the area below Gross. Thus for this critical independent duration (ID = six hour), the percent of simultaneous occurrence of the 100-year, one hour, two hour, three hour, twelve hour, and 24 hour duration rainfalls would be, respectively, 57.6, 70.9, 78.3, 80.7, and 64.3 percent. We believe the percent of simultaneous occurrences would be even higher if the analysis technique had included two part storms as suggested by Henz. The percentages of simultaneous occurrences are high enough to well justify the approach herein.

TABLE III-3

PERCENT OF CONCURRENT STORMS AND RAINFALLS OF QUARTILE I
FOR THE FRONT FACE ROCKIES (SOUTH)
(NWS 27)

	ID INDEPENDENT DURATION (HR)					
DD Dependent Duration (Hr)	1	2	3	6	12	24
1		74.4	67.8	57.6	47.6	39.4
2	75.4		87.2	70.9	57.8	47.0
3	68.9	88.0		78.3	64.1	53.1
6	58.5	72.8	80.2		79.3	62.8
12	49.3	59.6	65.7	80.7		74.6
24	40.9	49.1	54.4	64.3	76.3	

TEA contacted Frank Richards, one of the authors of TP 27, on October 12. Mr. Richards stated that the studies had been done for the Soil Conservation Service (SCS), which hoped to find improved methods for constructing design storms. Authors of the reports conducted an additional study for SCS; this study described a problem in the dependence on choices presented to users of the procedure. With each decision/choice came the opportunity to take many divergent paths, and taking even a slightly different path could produce widely varying results. Mr. Richards regards the study as an "academic exercise"; SCS never adopted the procedure.

At the October 14, 1999 meeting, the sponsors directed the following:

- The NWS 40 and TP 27 procedures were not to be used.
- The Bureau of Reclamation would not be consulted further about the Area Reduction Factors which it may use in dam investigation.
- SCS (now NRCS, the National Resource Conservation Service) would not be consulted about its design storm patterns.
- The Bureau of Reclamation's *Flood Hydrology Manual* procedures would be followed, serving to reduce (i.e., make more realistic) the volume of rainfall produced by the upper basin (Zone 4) so that the total rainfall volume over the entire watershed was correct.

With respect to the last item above, the rainfall produced in TEA's spreadsheets for each design storm in Zone 4 was reduced further by approximately 0.93 percent to make sure the entire basin rainfall volume was correct.

May 1969 STORM

In an attempt to calibrate the rainfall/runoff model, the South Boulder Creek hydrology study included investigation of available rainfall data for the May 4 - May 8, 1969 storm. Unfortunately, 5 to 15 minute rainfall gage data were not recorded in the watershed. Hourly data were available from the Gross Reservoir recording station. Daily rainfall records were reported by a network of citizens in the basin for the May 1969 storm.

Hourly and more frequent rainfall values for the storm were available from a series of gages located at varying distances north and south of the South Boulder Creek basin boundary. TEA graphed data from the northern gages (Boulder 2, A1, B1, C1, and D4) to determine whether a pattern of the May 1969 storm peak's movement existed. Through an overlay of the graphs of the northern rainfall gage data, the pattern of a moving storm became apparent. However, the southern gage data did not provide a similar pattern.

The Bureau of Reclamation provided TEA a copy of its isopluvial map for the May 1969 storm; TEA questioned the triangulated irregular network (TIN) mapping of the rainfall data, and realized that other isopluvial patterns could be constructed from the limited data available. Other TIN interpretations of the same data could produce different isopluvial patterns; thus a wide range of modeling results could occur. Therefore, it appeared unreasonable to simply transfer gage data from outside the watershed directly into a runoff model of South Boulder Creek.

At an October 6, 1999 meeting held to discuss, among other things, difficulties in obtaining 1969 storm data, John Henz (Henz Meteorological Services) indicated they could probably construct input data for the 1969 storm. Project sponsors agreed at an October 14, 1999 meeting that, because of problems with obtaining data for the May 4 - May 8, 1969 storm (e.g., lack of rain gages in the basin, additional effort involved in an attempt to fit data outside the basin to theoretical values for the storm in the South Boulder Creek watershed), TEA should not spend additional hours assembling data in an attempt to simulate the 1969 storm. The sponsors concurred with the plan to verify responses of selected individual subbasins in the UDSWMM model by the comparison to UDFCD's CUHP model for those subbasins.

SECTION IV

SURFACE RUNOFF

INTRODUCTION

This section summarizes:

- Pervious Surface Infiltration
- Pervious and Impervious Surface Depression (or Detention Losses)
- Land runoff, overland flow length, slope, and hydraulic flow resistance

INFILTRATION

The only comprehensive source of land surface condition and infiltration characteristics is soils mapping inventories by the National Resource Conservation Service (NRCS or SCS herein) and the United States Forest Service (USFS), which uses NRCS methodologies. For this study, maps for the watershed were obtained from both of these agencies.

For each of the subbasins the various soil types were identified by name on the maps, and then the soil infiltration classification(s) were assigned (A - low runoff potential—through D - high runoff potential). Other land surface conditions were observed on the aerial mapping and from field work in the lower watershed below Eldorado Springs. These conditions include vegetative cover and type, how much of the area was disturbed by development, and other factors that might discourage or encourage infiltration. This analysis is presented in the separate technical appendix in more detail for the subbasins. Based on the interpretive guidelines of NRCS, Runoff Curve Numbers (RCN) were selected for each basin.

In order to limit the number of infiltration combinations, it was determined that six to eight representative RCN categories would be allowed and the final RCN for each basin selected from these available choices. Subsequently, an analysis of comparable Horton's infiltration parameters was conducted to assure that infiltration amounts at the peak of the event and for the twenty-four hour rainfall were approximately equivalent to NRCS methodology.

Curve Numbers

Some subbasins contained two or more soil groups and, in those cases, if one soil category clearly dominated in the subbasin (for example, if the predominant soil group was estimated to cover 75% of the area), the dominant soil category was used as the average soil type. If the areas covered by soil types in the subbasin were roughly equal, the soil category for the subbasin was designated as, e.g., "½ C, ½ D." In all cases where the subbasin soil group area was insignificant, that group was not included in the Curve Number tabulation.

Specific Curve Numbers for the subbasins were determined without considering the percent impervious areas. UDSWMM uses separate parameters for the basin's percentages of pervious and impervious land use coverages. The value range for good and poor ground cover, used in determining the Curve Number for each subbasin, was taken from the NRCS reference.

Ground cover or land use treatment was estimated in some subbasins by noting the percentage of the basin which had either southern, or northern, exposure. It was assumed that northern exposures generally indicate good ground cover (heavy forest and understory), and consequently those subbasins have a lower Curve Number, or less runoff from precipitation. Correspondingly, a southern exposure indicates a more moderate ground cover (grasses, lighter density trees, and brush), and a subbasin with southern exposure can be assumed to have more runoff than would the same soil type in a location with northern exposure.

For example, in the South Draw area, which has northern exposure, knowledge of the area confirmed this pattern. Groundwater monitoring wells indicate that the area is highly infiltrative. Curve Numbers in that area are in the low 60's, reflecting the infiltrative soils/geology of the area.

Also, there are areas with infiltration patterns of special interest. Some subbasins have a large extent of exposed rock and poor ground cover. For those areas, Curve Numbers appropriate for poor ground cover conditions were used. The ground cover along the South Boulder Creek floodplain (predominantly cottonwood trees) is conducive to infiltration. Elevations in certain areas in the watershed reach above the tree line, and in those areas where it was assumed that a subbasin's elevations would noticeably affect the percentage of tree cover, a slightly higher Curve Number was used.

Table IV-1 indicates typical ground cover that might be expected for the six Curve Number groups used in the model.

Table IV-1

Representative SCS Curve Number, Soil Types and Land Condition

Curve Number	Typical Soil Type, Land Use, and Ground Cover
45	A type soil, pasture or range land, good condition A type soil, open spaces (lawns, parks, golf courses) A or B type soil, with heavily forested areas
55	A, B, or A/B type soil in urban settings with good cover A or B type soil, with exceptionally good vegetative cover B type soil in forests, with good cover and northern exposure
60	A or B type soil, with moderately good vegetation - if in mountains or foothills northern exposure B type soil in meadow with good cover
65	B type soil in pasture or range land, with good cover B/C type soil with moderately good cover B type soil in open space with good cover B type soil with moderately good vegetative land cover - possibly urban setting with good lawn cover
70	C type soil, in mountains with general northern exposure and good cover C type soil, urban space with fair to good vegetation C type soil, urban setting with dirt roads
78	D type soil, or C and D type soil mix, with southern exposure - also poor ground cover C or D soil in urban setting open space (lawns, parks) with good or fair cover

Determination of Horton's Parameters

Horton's equation is not similar to the NRCS runoff equation, a standard for determining rainfall runoff. Horton's equation uses a soil's initial and final infiltration rates and a constant for the rate of decrease from the initial capacity. The Horton equation is a function of elapsed time from the start of the event. Because the time to the peak of the rainfall is much longer for the South Boulder Creek design storm than the normal UDFCD/Boulder criteria two or three hour event, the decay rates have to be changed from the normal UDFCD/Boulder standards. The NRCS Curve Number estimates runoff by an algorithm that uses cumulative precipitation in the design event.

Horton's parameters that would reasonably simulate the eight hour and twenty-four hour infiltration were determined which would approximate results obtained with the NRCS Curve Number approach. In an iterative process, matching curves for the two approaches to infiltration were constructed, using the rainfall spreadsheets described in Section III. The Horton's parameters determined are presented in Table IV-2 for the South Boulder Creek UDSWMM model using a twenty-four hour design storm with the peak at eight hours. Figures IV-1 through IV-6 present the graphical comparison of the cumulative infiltration for Zone 1.

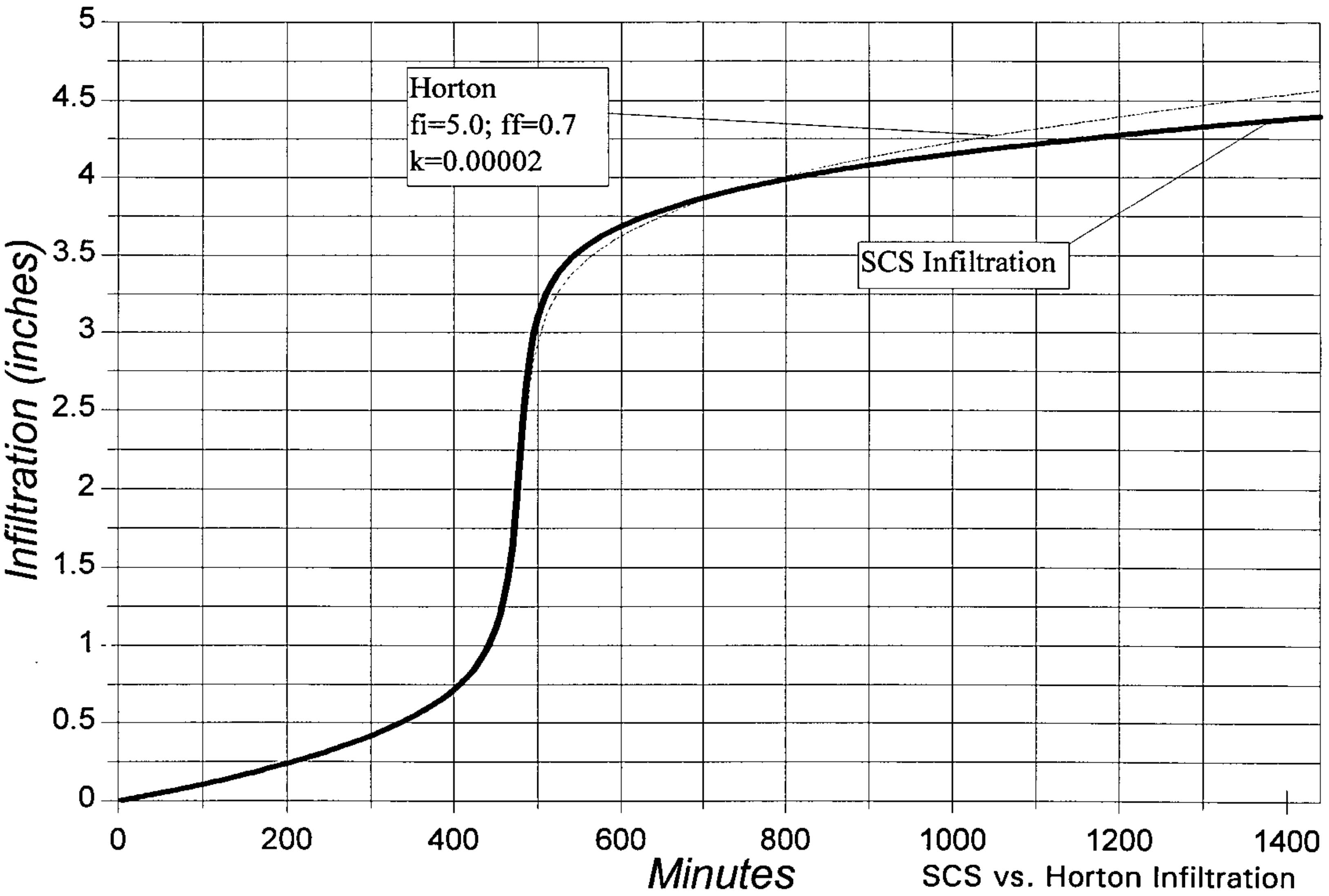
Table IV-2
SCS Curve Number and Comparable Horton's Infiltration Parameters
for South Boulder Creek 24 Hour Precipitation

SCS Curve Number	HORTON		
	Initial Infiltration Rate, f_i	Horton's Infiltration Rate, f_f	*k*, the Rate of Decrease
45	5.0	0.7	0.00002
55	5.0	0.6	0.000055
60	4.8	0.5	0.0001
65	4.5	0.6	0.0001
70	3.9	0.5	0.00024
78	3.5	0.2	0.001

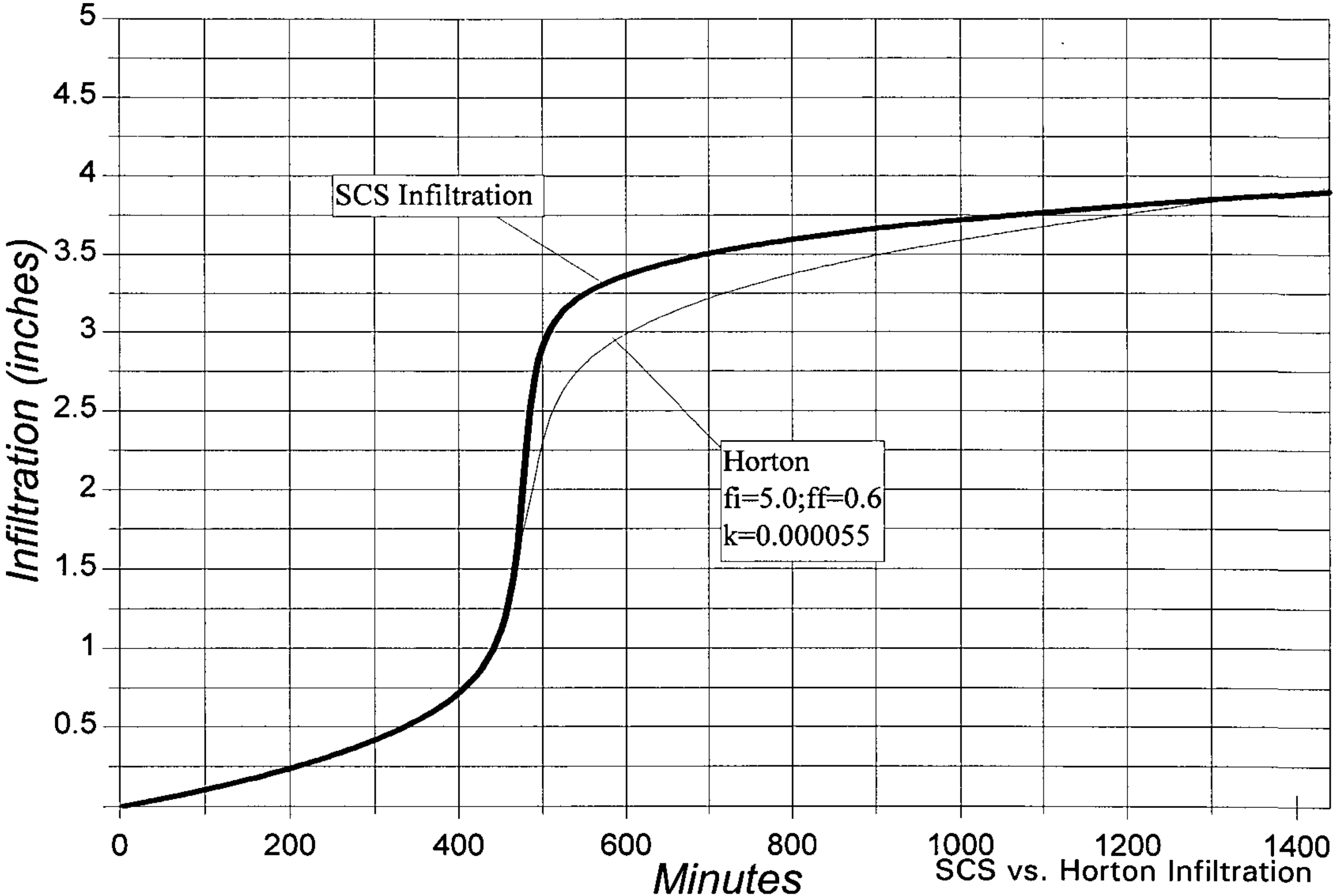
IMPERVIOUS LAND SURFACES

Vast exposed rock areas or urbanized areas with streets, buildings, and parking lots are two examples of impervious surfaces.

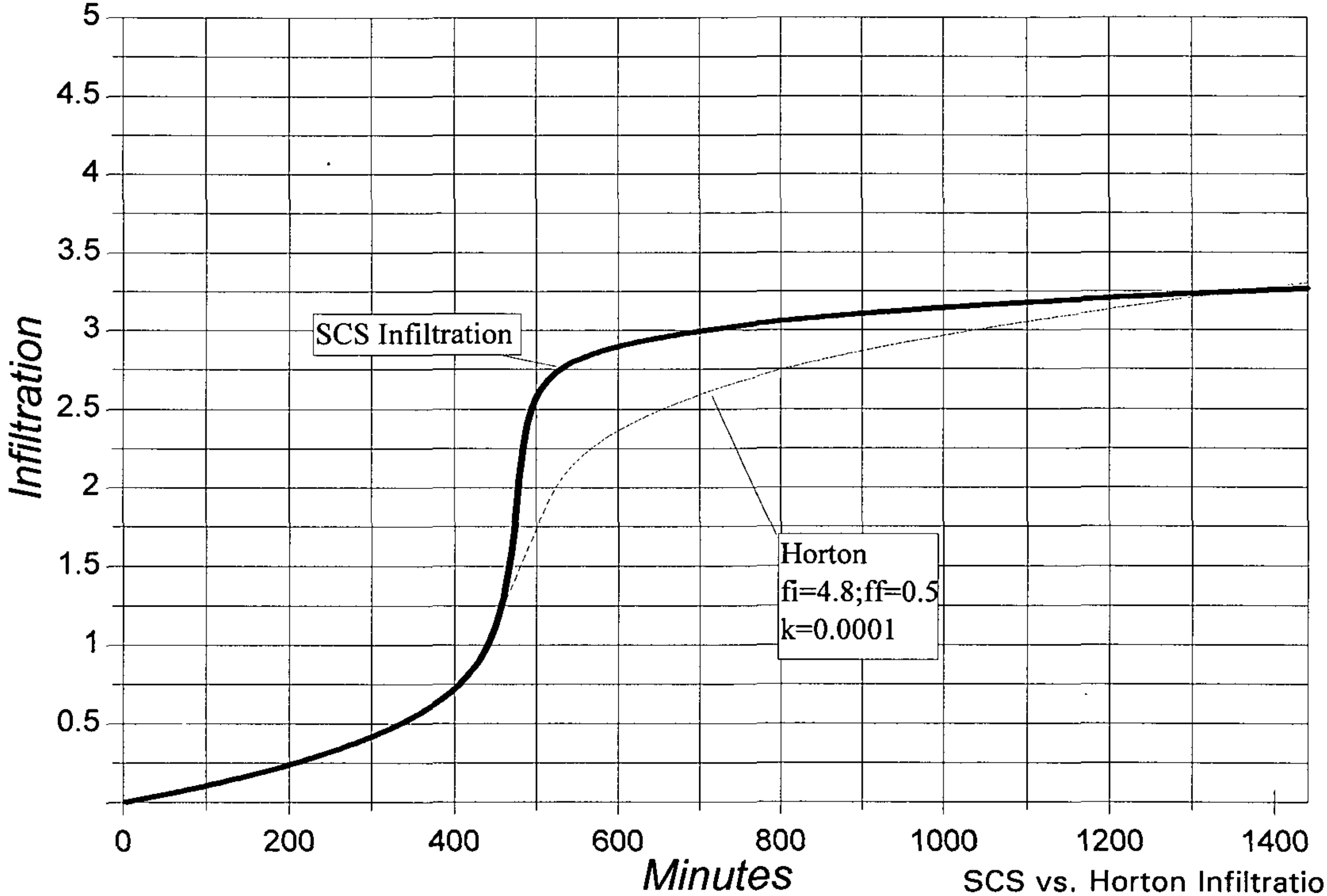
Percent imperviousness of the basin is another parameter in UDSWMM.



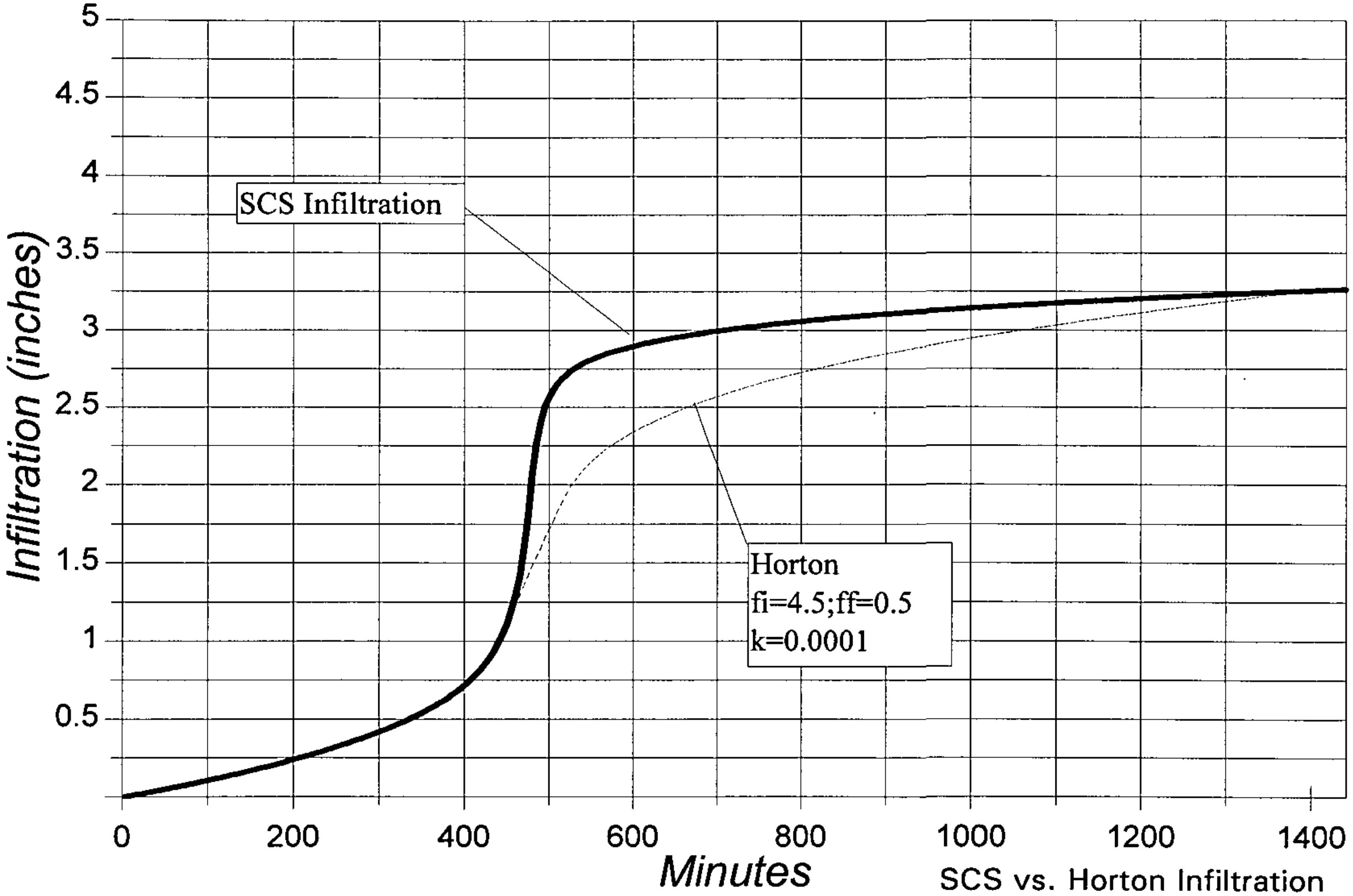
SCS vs. Horton Infiltration
Zone 1, 100 Year,
Cumulative, CN = 45
TEA Figure IV-1



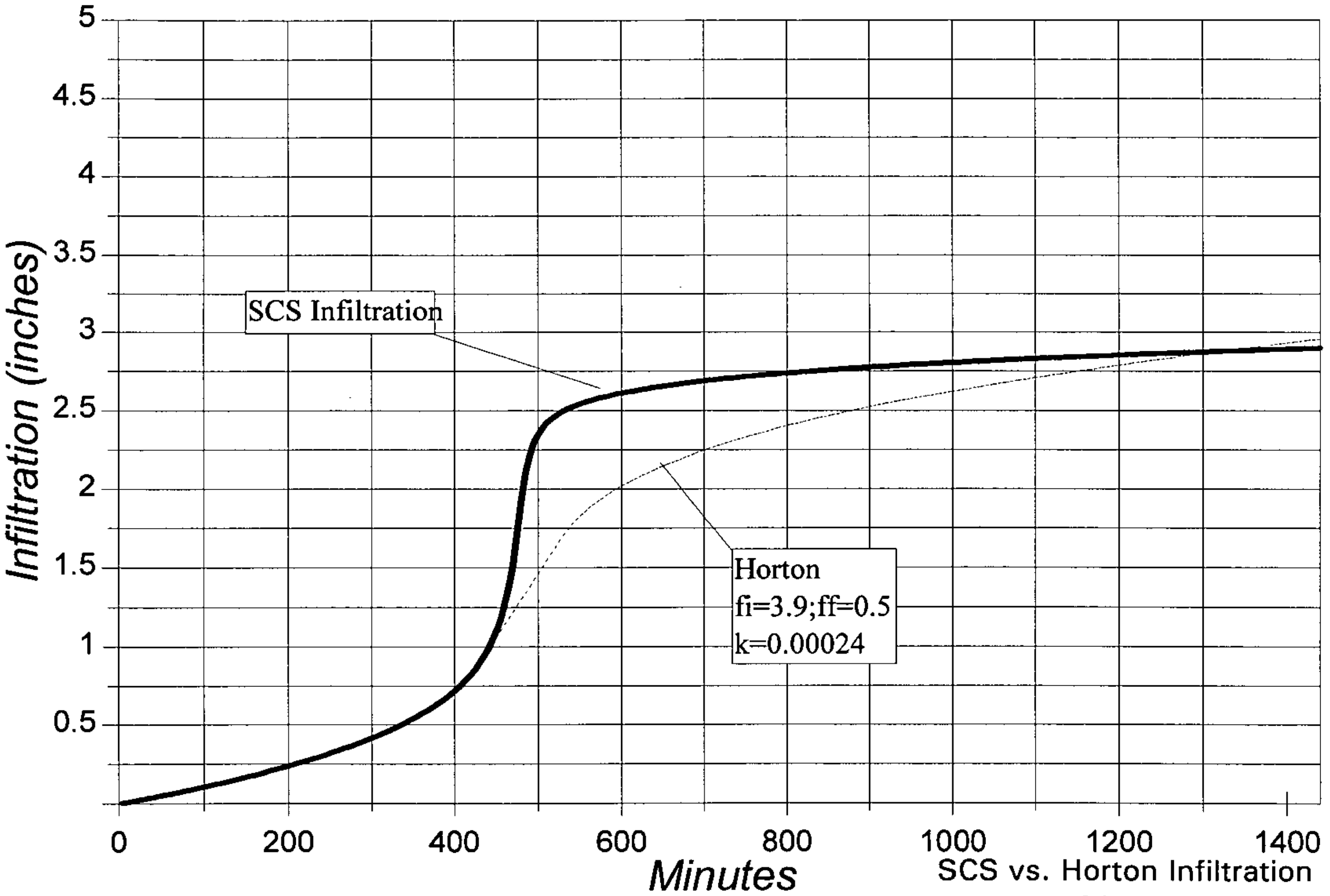
SCS vs. Horton Infiltration
Zone = 1, 100 Year,
Cumulative, CN = 55
TEA Figure IV-2



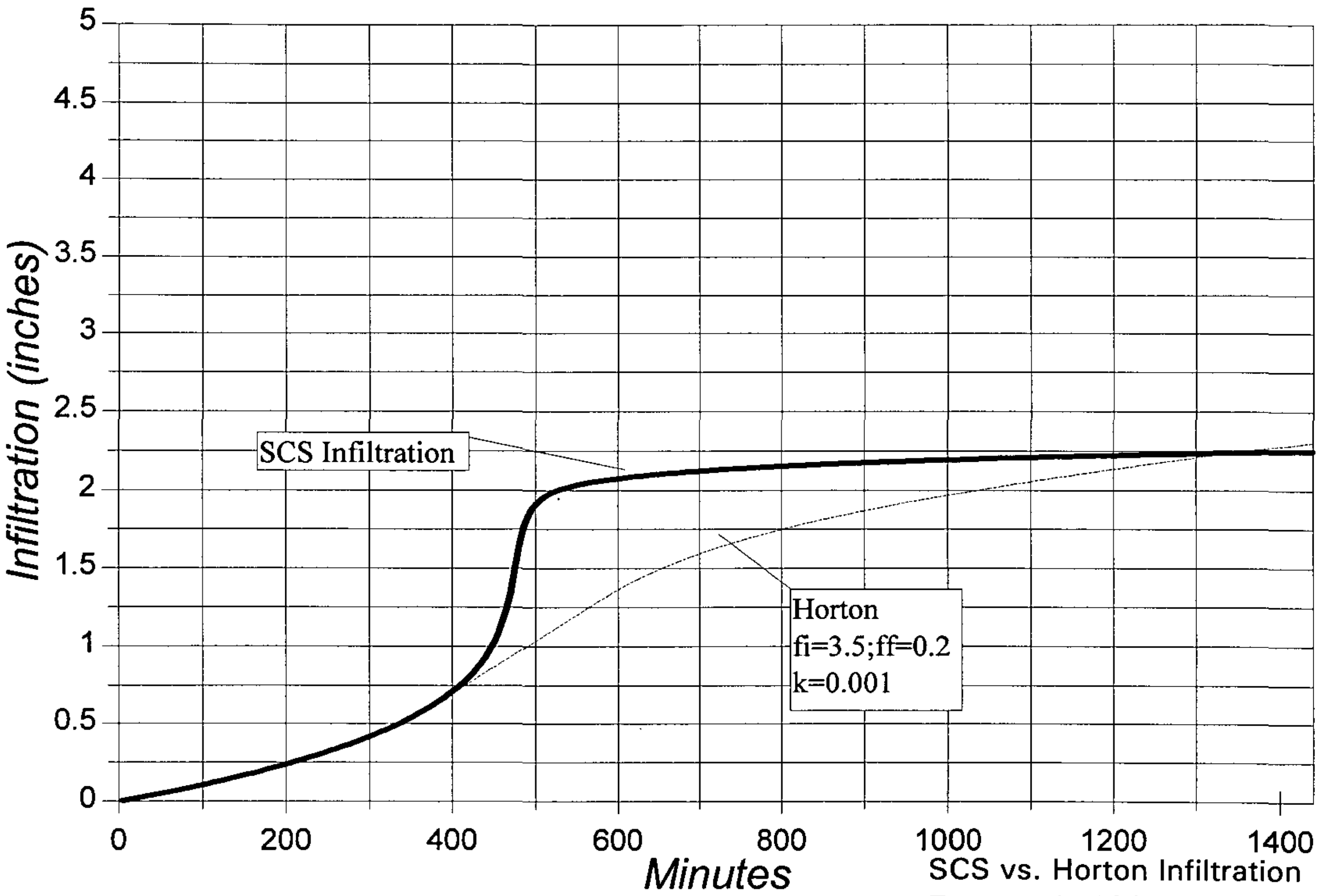
SCS vs. Horton Infiltration
Zone 1, 100 Year,
Cumulative, CN = 60
TEA Figure IV-3



SCS vs. Horton Infiltration
Zone 1, 100 Year,
Cumulative, CN = 65
TEA Figure IV-4



SCS vs. Horton Infiltration
Zone 1, 100 Year,
Cumulative, CN = 70
TEA Figure IV-5



SCS vs. Horton Infiltration
Zone = 1, 100 Year,
Cumulative, CN = 78
TEA Figure IV-6

In mountainous areas where large expanses of exposed rock can be seen in the SCS soils book aerial photographs, or when other sources indicate large rock outcroppings, the percent impervious factor used in the model ranged up to thirty percent. In mountainous areas without large expanses of exposed rock, the percent impervious area used in the model ranged from five to eight percent. If a mountain subbasin had been developed, its impervious factor ranged from ten or twelve to twenty-five percent

UDFCD/Boulder standard guidelines were used in urban areas. Direct experience with the lower watershed was used to identify the land uses and thus the impervious percentages per the guidelines.

DEPRESSION LOSSES

Depression losses are caused by rainfall lost to wetting impervious surfaces and holes or other features that trap runoff and prevent it from contributing to surface streams. The typical range of UDFCD/Boulder values are used in the model with two exceptions. In the mountains, particularly in Eldorado Canyon and at the Continental Divide, there are large expanses of exposed rock, or essentially impervious surfaces. The NRCS soils maps also identify these areas in Eldorado Canyon. Values of 0.3 inches depression loss were used to reflect that these surfaces are rough, irregular, and have adjacent talus slopes that hold runoff. Also in areas with mountain roadways, higher depression losses were used to reflect the rougher roads and impervious surfaces.

SURFACE RUNOFF HYDRAULIC PARAMETERS

Roughness parameters for the hydraulics of the shallow surface runoff over the various sources were determined using experience, UDFCD/Boulder guidelines, and review of references (HEC-1, Harley, Taggart).

The only exception to UDFCD guidelines is with respect to roughness of paved surfaces. A value in the UDFCD Criteria has been designated which is really for shallow stream flow, and is not appropriate for shallow overland flow. Values of 0.15 to 0.3 in the model have been used for shallow overland flow depending on whether the impervious surfaces are urban roads or rougher mountain roads.

OVERLAND FLOW LENGTHS AND SLOPES

Generally overland flow lengths of 100 to 500 feet have been used in urban areas, and 800 to 2000 feet in rural areas. The overland flow lengths were determined by reviewing the dominating or typical overland flow lengths in a given basin. Significantly longer lengths were generally not allowed, as it is difficult for runoff to travel further than this and not become stream flow.

In SWMM the "W" parameter was determined or checked by dividing the basin area by the overland flow length. This procedure has been verified in discussions with SWMM programmers and by experience with numerous other UDFCD and private drainage projects.

The slopes are determined based on the mapping, but adjusted downward to remove the various instantaneous drops that invariably occur.

OVERALL RESULTS

The UDSWMM model herein indicates that over the entire watershed for the 24 hour 100-year event there would be about 4 inches of precipitation and 1 inch of effective runoff.

SECTION V

HYDROLOGY MODEL

MODEL OVERVIEW

Drawings 1 through 11 (at the end of this report) illustrate both the watershed and the UDSWMM Hydrology Models. Key elements include:

- Basins, where the rainfall runoff process is simulated.
- Streams, which route the runoff down the tributary and main streams. In some cases simple trapezoids are used with appropriate geometry, slope, and roughness characteristics that will result in velocity and cross section areas *that are perceived as representative. In larger channels, two stream elements* are used where the low flows are carried in a smaller channel, and overflows in a wider and often rougher channel. The combination is intended to simulate the velocities and cross sections of the real channel.
- Nodes, which provide a variety of functions: receiving runoff, receiving stream elements, combining streams or other nodes and receiving flow splits.
- Flow splits, where flows are divided between two paths. Typically the discharge end goes to the downstream route which receives the initial or low flow. The split typically goes to the overflow route. Simple nodes are used on the upstream, downstream, and split side of the node to monitor accurate performance and avoid UDSWMM timing problems.
- Storages, which receive, store, and route hydrographs arriving at a given location.

Table I-1 presents a comparative summary of the model results with the previous Corps' model and the flows in the G & O Flood Hazard Area Delineation (FHAD). All input parameters and detail model peak flow results are presented in Appendix A.

LIMITATIONS

- The UDSWMM land runoff router flow algorithm uses "Linear Reservoir routing." It is not Kinematic Wave routing where lateral land surface runoff inflows continually to the stream. In UDSWMM the runoff flow for an entire subbasin either misses the stream routing or all of the runoff goes through the entire stream, instead of gradually entering along the stream. However, either Kinematic Wave or Linear Reservoir routing is well suited to simulation of mountain stream hydrology.

- This version of UDSWMM was apparently adopted to limit variances among modelers but there are problems:
  - No graphics output.
  - Numerically unstable at times and has difficulty linking numerous elements, particularly flow splits.
  - Very limited stream flow routing with only trapezoids, rectangular, triangular, and circular sections that don't depict natural sections and only lag hydrographs rather than actual dynamic routing. Foodplain sections are simulated poorly, where the combination channels can't possibly simulate the hydraulics that occur. Combination channels can cause flow acceleration, as documented in the work herein.
  - One dated infiltration method.
  - Comment cards cannot be added where needed in the input.

- The Colorado Unit Hydrograph Procedure (CUHP) has a statistical basis in its derivation of parameters and thus can be used as a limited reasonableness test for similar watersheds. However, many of the subbasins in Boulder Creek are out of the application range of CUHP.

STREAM FLOW MODELING

Two types of stream dominate the model. The first is a simple trapezoidal channel which is used to simulate the simpler and small discharge mountain tributaries. The second is a compound section which has a low flow channel and a separate overflow channel. This second type is used along the larger tributaries, tributaries where there is a low flow stream with a wider overbank, and along South Boulder Creek and the West Valley Overflow. In a few cases the low flow segment is simulated by a pipe.

In most cases, the section roughness is increased over "normal" stream roughness parameters to account for other energy losses that occur, such as contraction, expansion, and hydraulic jumps. Also the stream slopes selected are typically flatter than the average stream slope to simulate the dominant slope and thus velocity that the water will travel. In some cases HEC-2 models were available, which were used to adjust the parameters selected.

In the mountains, the information was largely taken from the USGS electronic maps, and very limited field work. In the foothills and lower South Boulder Creek areas, the much more detailed City and County topographic mapping was used as a base along with field observations and limited surveys, largely using a hand level.

In previous phases of the work, surveys have been recommended, typically to enhance flow split, control structure, and representative stream sections. However these efforts have been deferred for consideration during scoping of possible subsequent studies, such as floodplain mapping.

REPRESENTATIVE 100-YEAR FLOOD HYDROGRAPHS

Gross Reservoir

Gross Reservoir, even assuming the beginning water surface is level to the crest of the dam, still significantly attenuates the flow as shown in Figure V-1. Approximately 1784 acre feet is stored.

Upstream Highway 93 to South Boulder Creek at Confluence with Boulder Creek

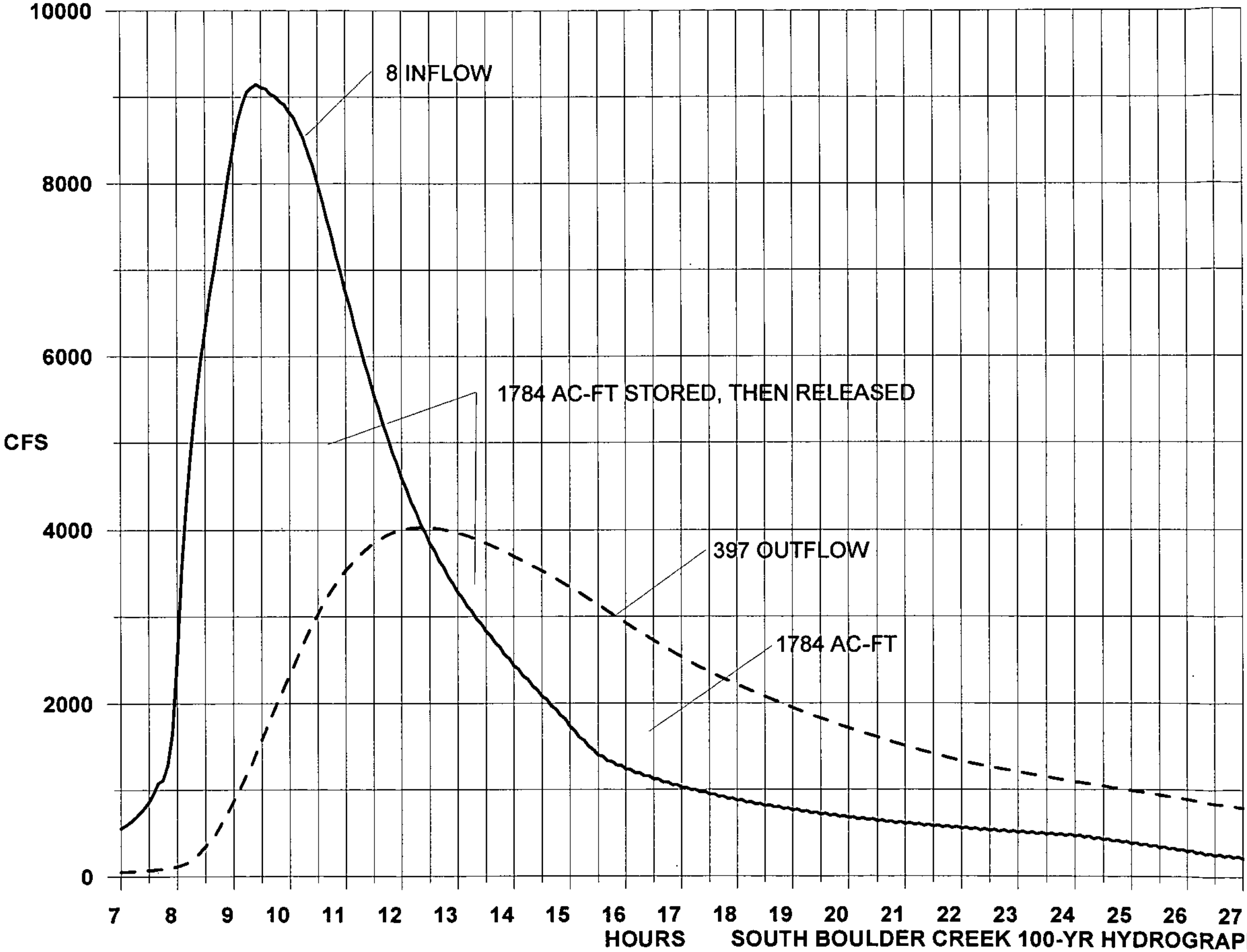
Figure V-2 compares South Boulder Creek flows at the Eldorado Gage, upstream of the split at Highway 93, and the direct discharge to Boulder Creek from the main South Boulder Channel. The upstream hydrographs show the spiky peak from Eldorado Canyon, and the delayed overflow of Gross. The discharge to Boulder Creek is missing a significant portion of West Valley spill to the west of 55th to Bear Canyon Creek and Boulder Creek and Valmont. Thus the total watershed discharge is really over 7500 cfs. The lower hydrograph shows the first peak from local drainage, the base of the upstream flood hydrograph carried from the main channel at Arapahoe (3000 cfs) and the overflow peak being routed through the West Valley Overflow through the golf course.

South Boulder Creek at Highway 93

As a result of two splits from South Boulder Creek upstream of Highway 93, only the hydrograph 1509 in Figure V-3 is left flowing under the bridge while the overflow spill hydrograph, plus additional local runoff (hydrograph 1533), goes to the West Valley Overflow.

South Boulder Creek - Highway 93 to Highway 36

The lower hydrographs in Figure V-4 show the effect of the flow splits upstream, which have diverted the peaks, leaving a steady "base" flow in South Boulder Creek. Hydrograph 1800 shows the addition of flow from Marshall to the South Boulder Creek flow under Highway 93 (1509). Hydrograph 1506 shows some minor attenuation from the long route through the floodplain. 1512 shows the "peak" coming back in from the West Valley Overflow, which is hardly attenuated as shown in the following graphs.



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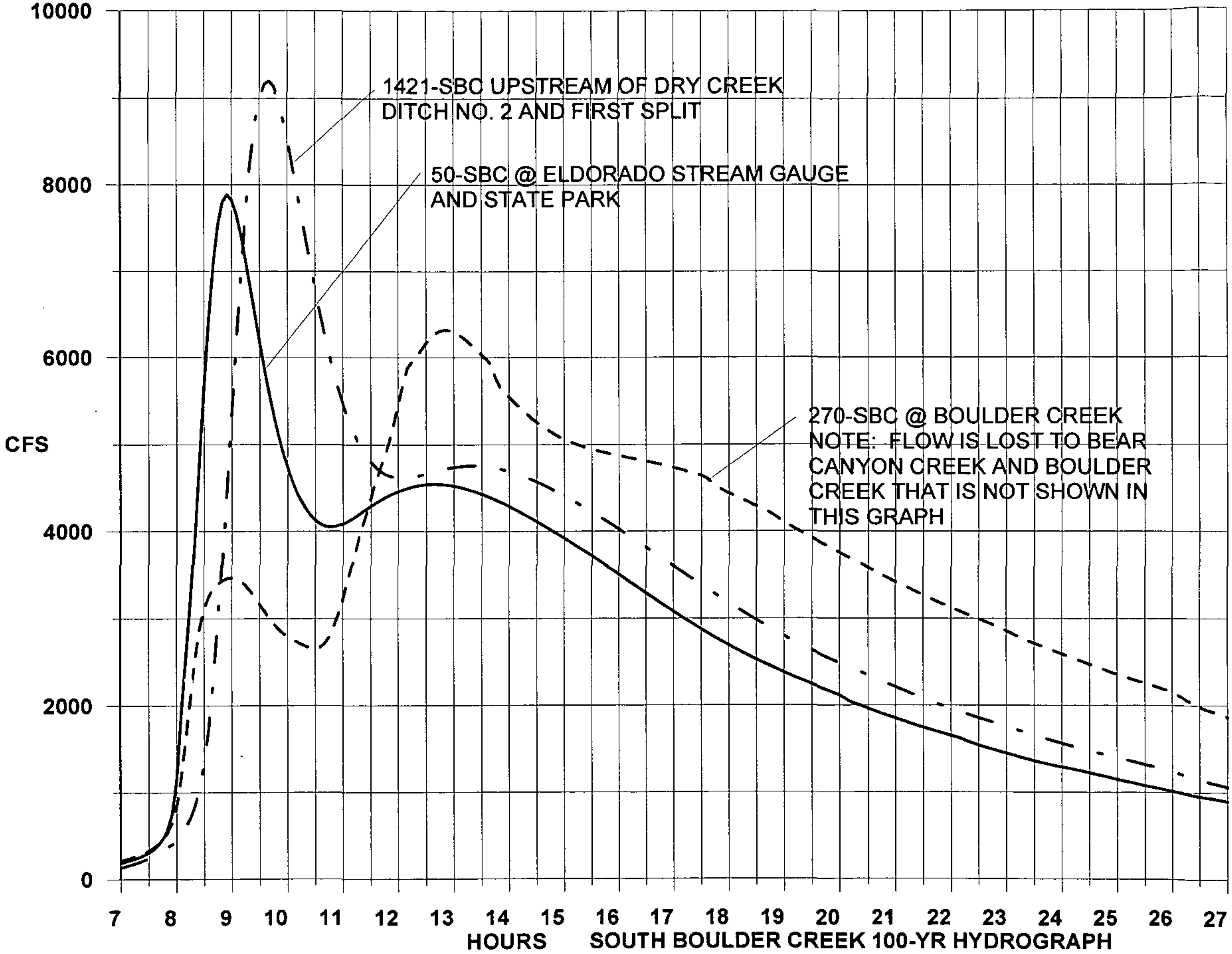
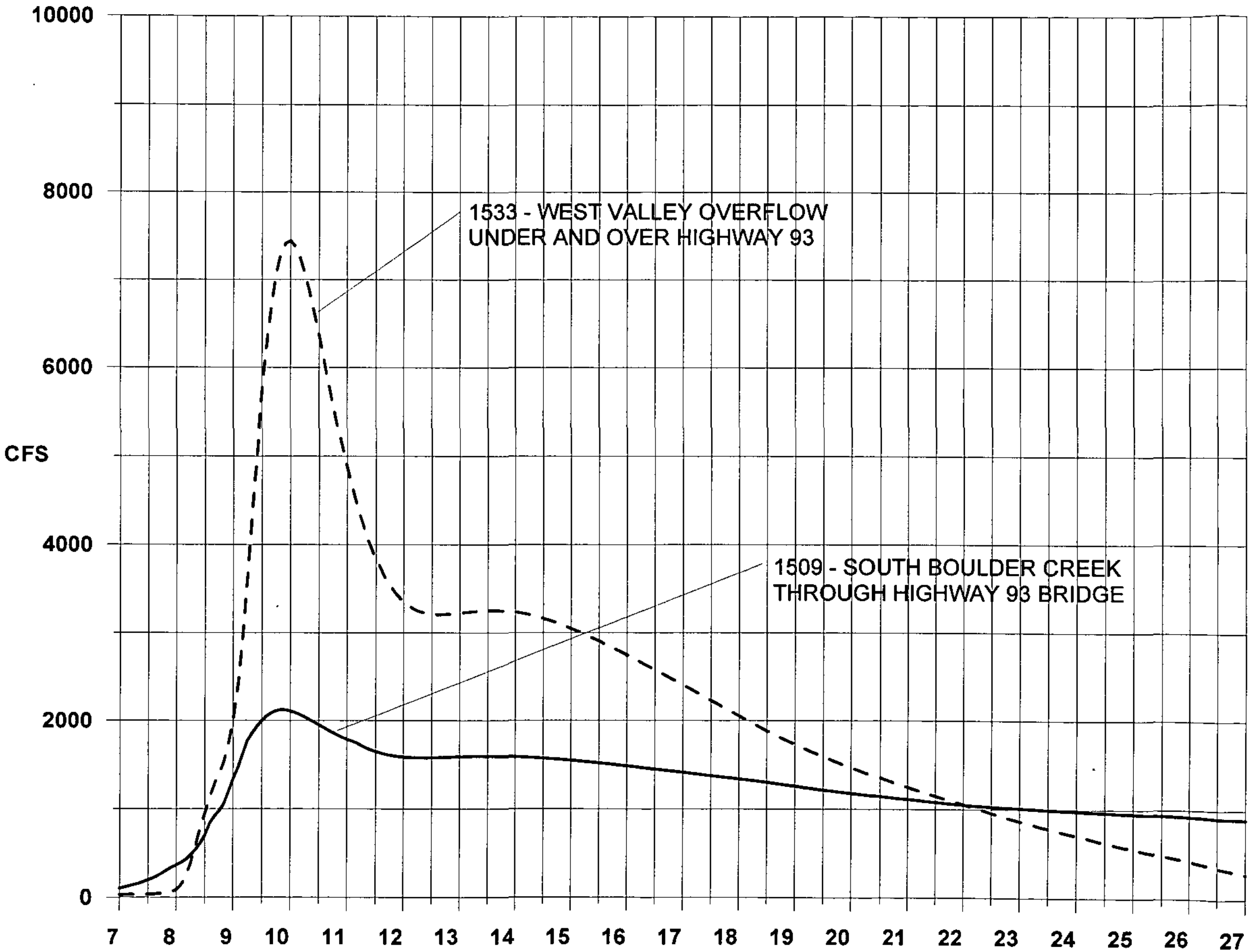
SOUTH BOULDER CREEK 100-YR HYDROGRAPH
GROSS RESERVOIR
TEA

FIGURE V-1



SOUTH BOULDER CREEK 100-YR HYDROGRAPH
UPSTREAM HIGHWAY 93 AND CONFLUENCE COMPARISON
TEA
FIGURE V-2



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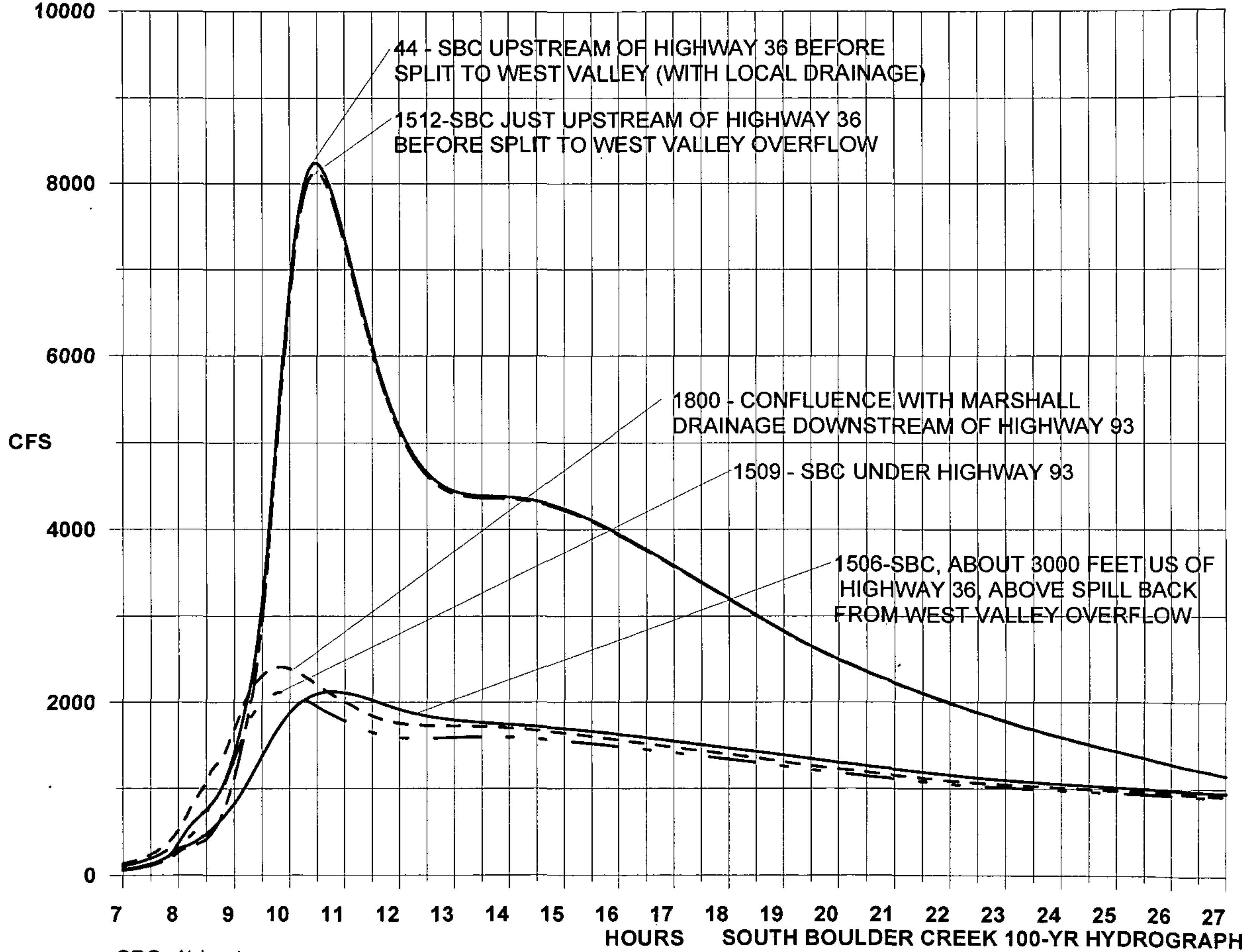
SOUTH BOULDER CREEK AND WEST VALLEY OVERFLOW
100-YR HYDROGRAPH AT HIGHWAY 93
TEA

FIGURE V-3



SOUTH BOULDER CREEK 100-YR HYDROGRAPH
HIGHWAY 93 TO US 36
TEA

FIGURE V-4

West Valley Overflows - Highway 93 to Flatirons Levee

Figure V-5 hydrographs illustrate the flashier peak overflowing from South Boulder Creek. Since the peaks are shaped nearly identically, only time lagging, not dynamic stream routing, has taken place.

Spill Above Highway 93 to West Valley

Figure V-6 depicts the hydrograph crossing Highway 93 at the West Valley Overflow. If a West Valley storage were to be constructed upstream of Highway 93, it would need to route this hydrograph, at minimum.

Total Flows Arriving at Highway 36 Area

As shown in Figure V-7, hydrographs 1442 (WVO) and 44 (SBC) represent the total stream flow arriving at Highway 36. The hydrographs have a very flashy peak from Eldorado Canyon and downstream areas, and a substantial middle section base from the Gross Reservoir overflow. Element 1442 illustrates the flow which will go directly to the West Valley in the channel that follows around the east side of the Flatirons Levee and roughly follows Dry Creek Ditch No. 2.

Spill Above Highway 36 to West Valley

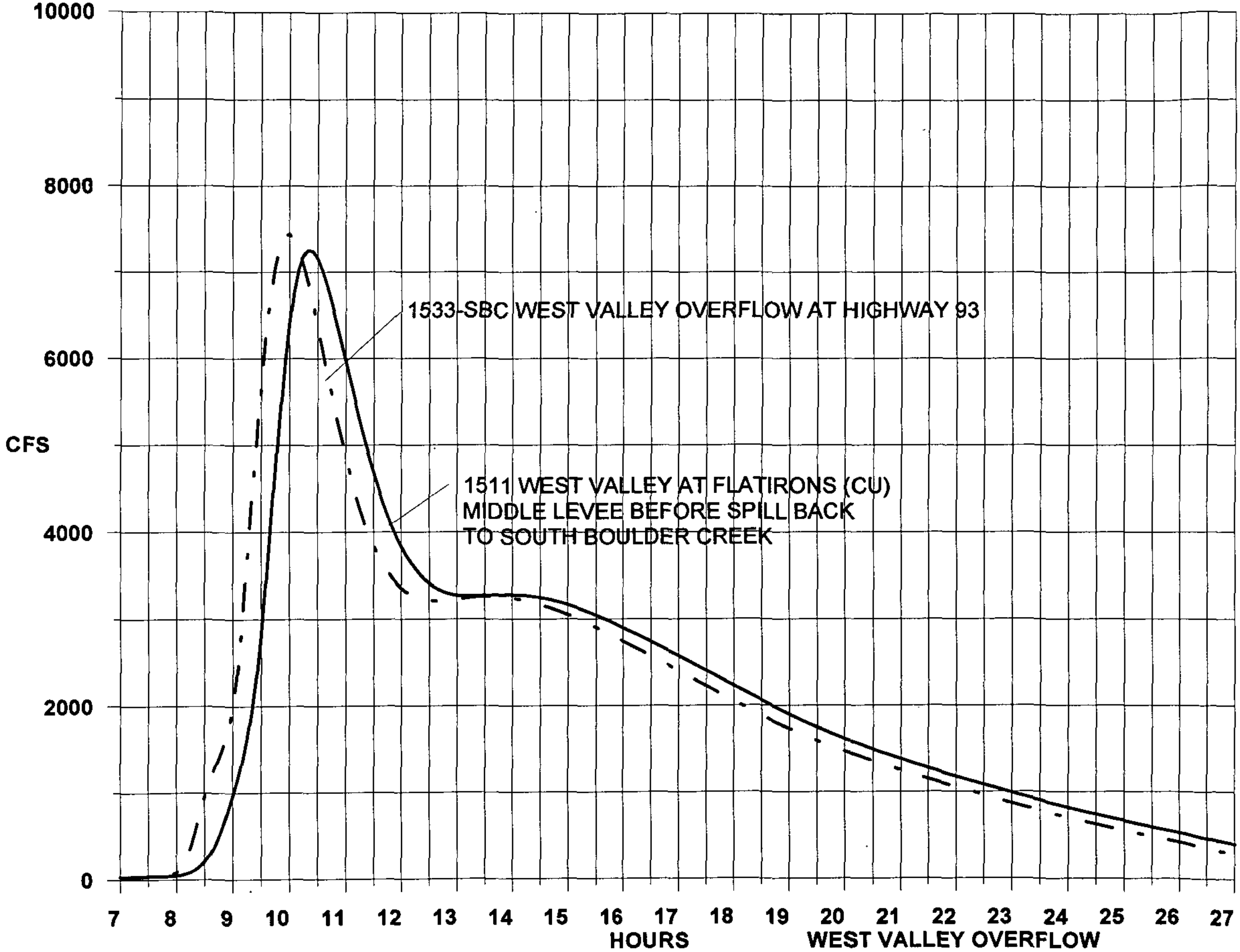
The Figure V-8 hydrograph represents the flow on the south side of the freeway directed toward the Highway 36 and Foothills interchange. Storage facilities at Highway 36 would probably need to manage this hydrograph.

South Boulder Creek from Highway 36 to the Wellman Ditch

The 242 hydrograph in Figure V-9 shows South Boulder Creek discharge downstream of the inflow of Viele. Comparison with the second (241 Baseline) and third (240 upstream of Wellman) shows hydrograph lagging, but not significant routing and attenuation. The spillway flow from Gross significantly extends the 4000 cfs duration.

South Boulder Creek from the Wellman Ditch to Downstream

Figure V-10 hydrographs depict the flow in South Boulder Creek below the Wellman, the reduced hydrograph 233 after the spill to the golf course, and downstream hydrographs to above the confluence with Boulder Creek. By comparing 238 and 270, it is apparent that only a portion of the WVO is returning to South Boulder Creek as the spill to the golf course from South Boulder Creek (238 less 233) is a significant portion of the flow returning (270 less 231), while



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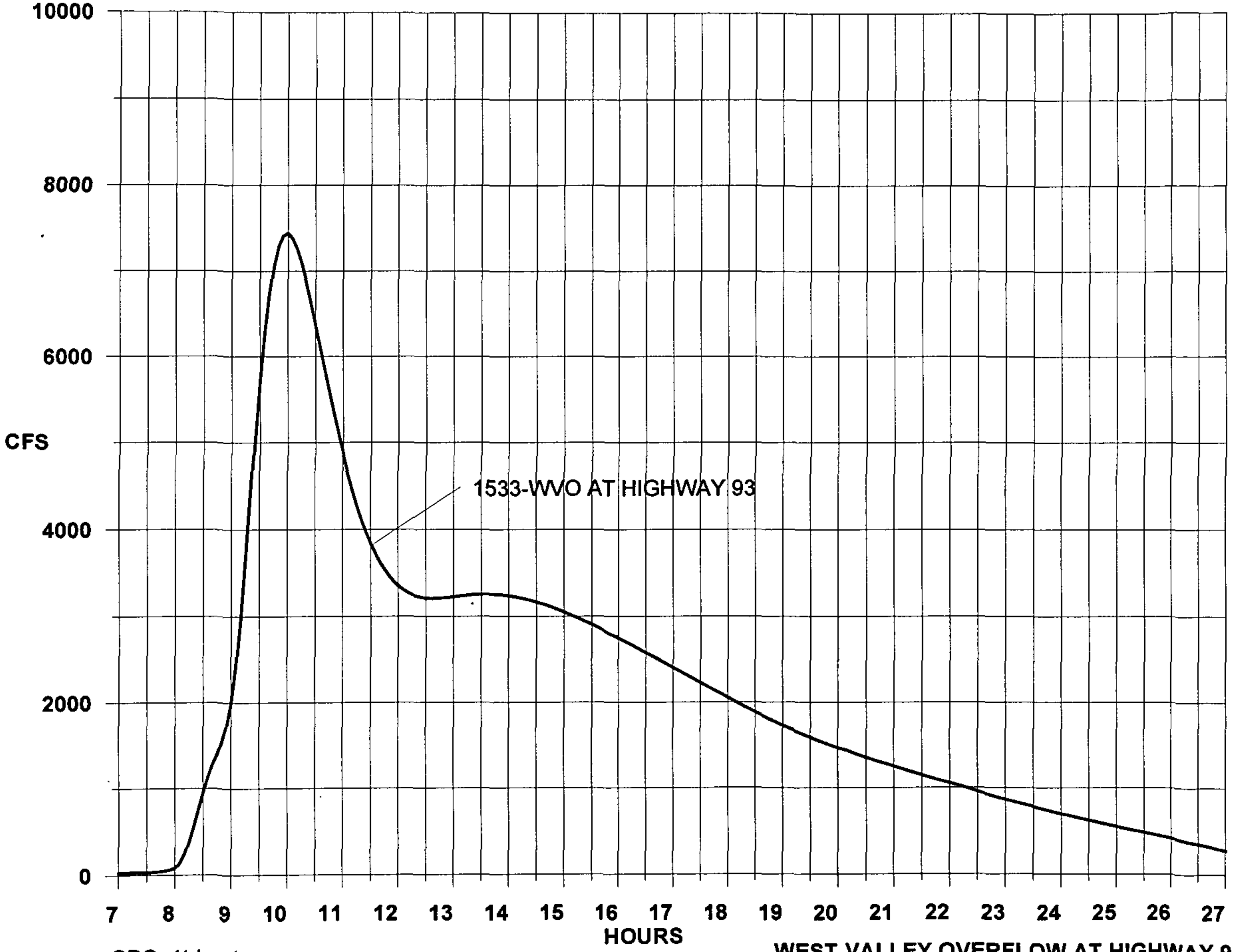
WEST VALLEY OVERFLOW
HIGHWAY 93 TO FLATIRONS (CU) LEVEE
TEA
FIGURE V-5



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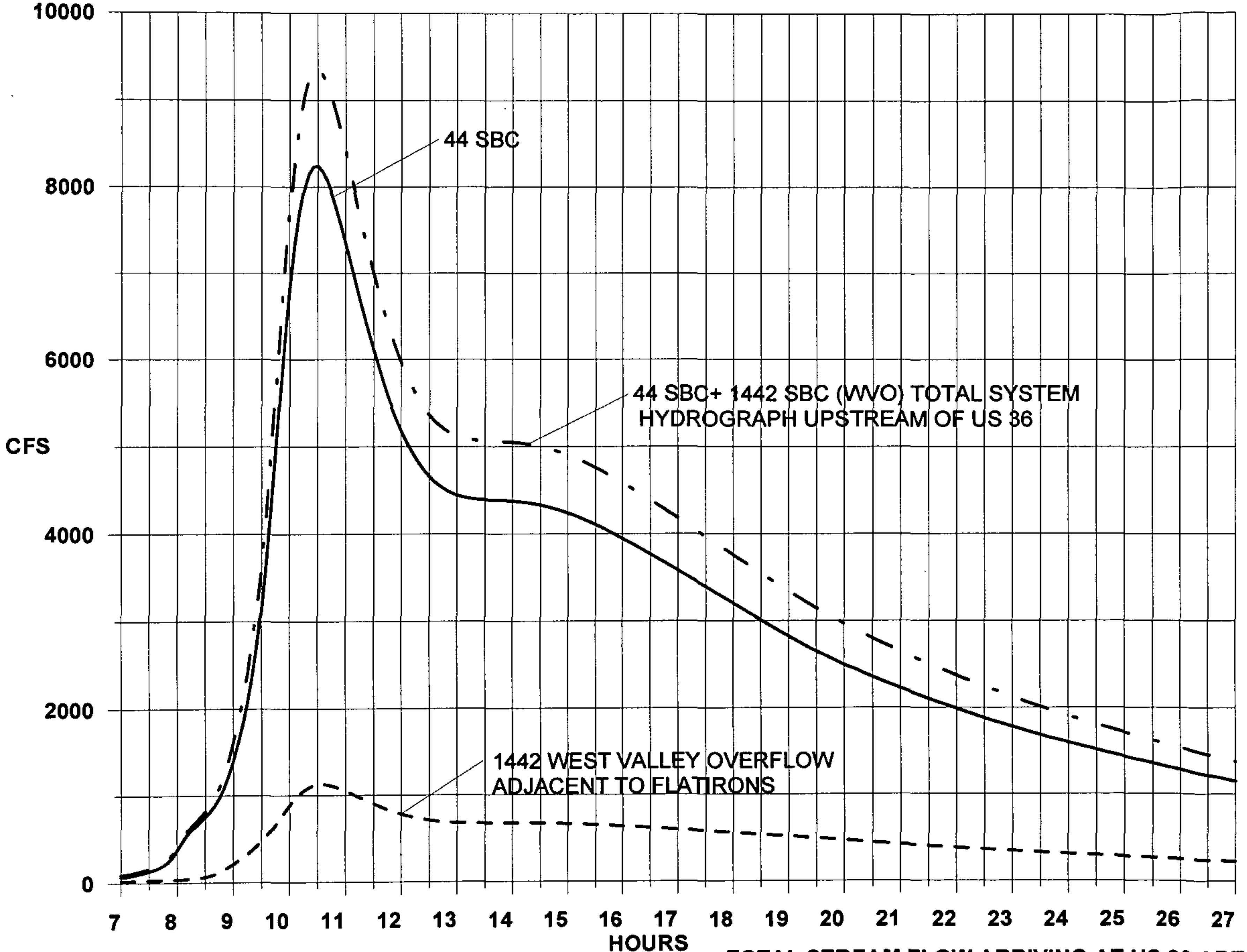
WEST VALLEY OVERFLOW AT HIGHWAY 93
TEA
FIGURE V-6



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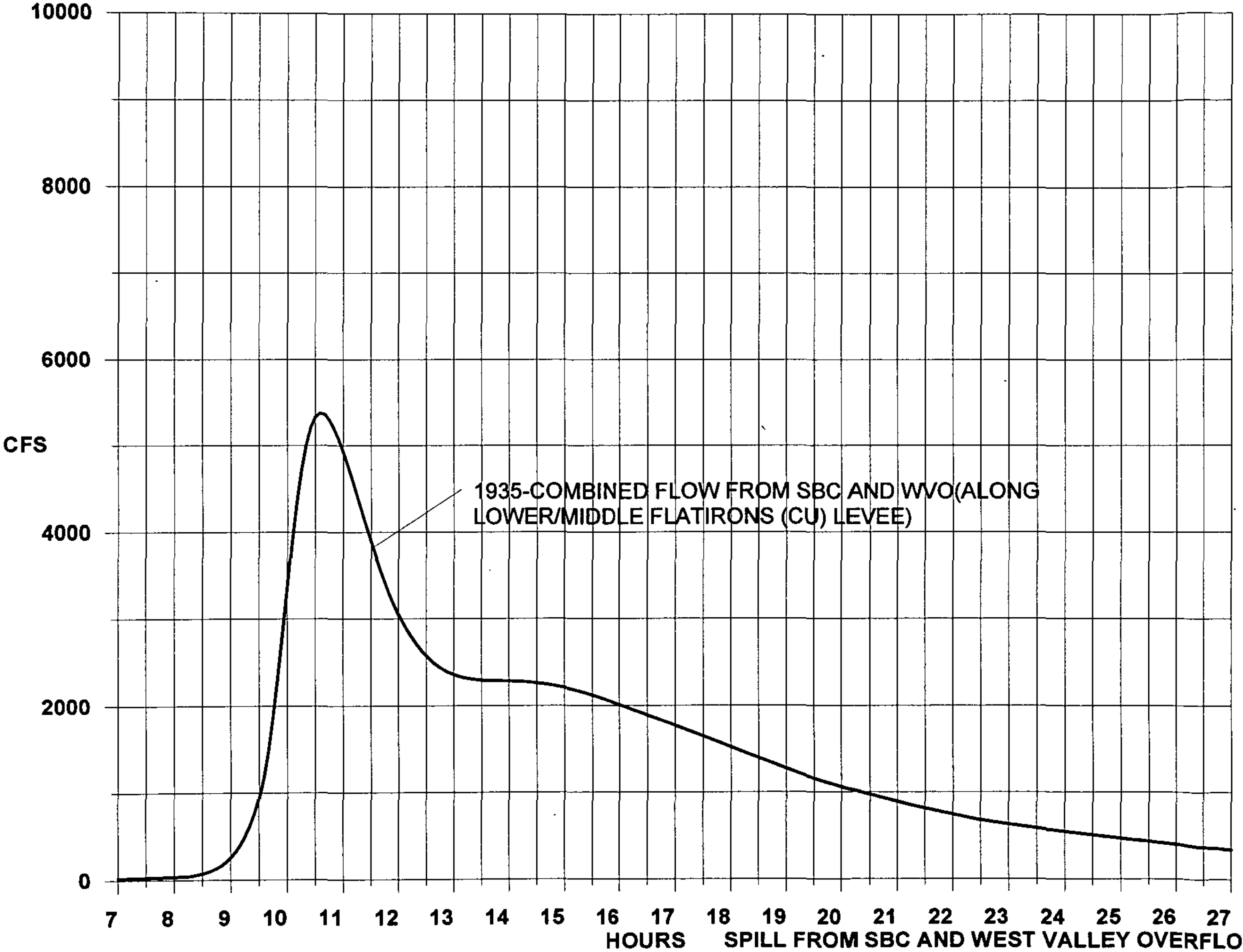
TOTAL STREAM FLOW ARRIVING AT US 36 AREA
TEA **FIGURE V-7**



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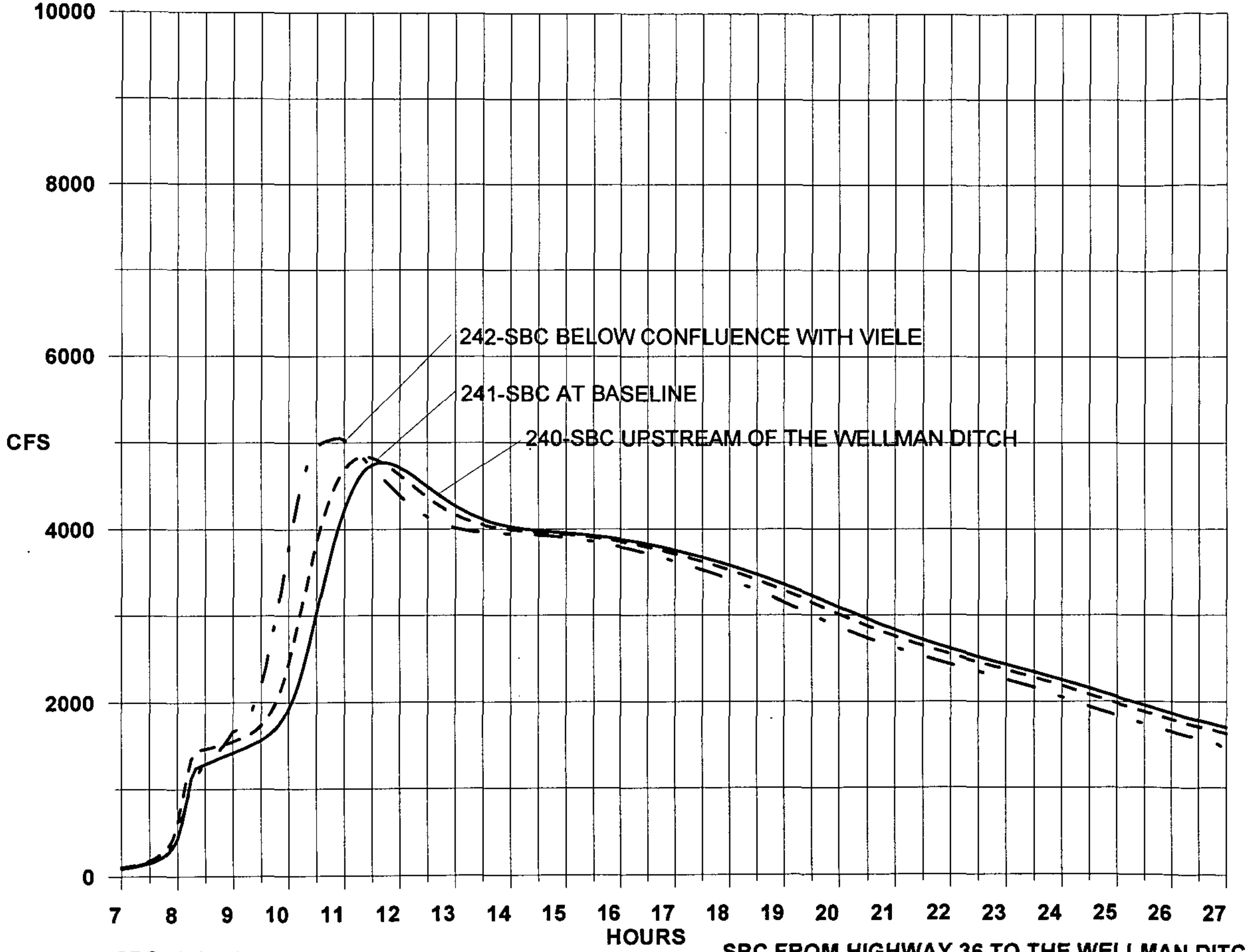
SPILL FROM SBC AND WEST VALLEY OVERFLOW
UPSTREAM OF US 36
TEA

FIGURE V-8



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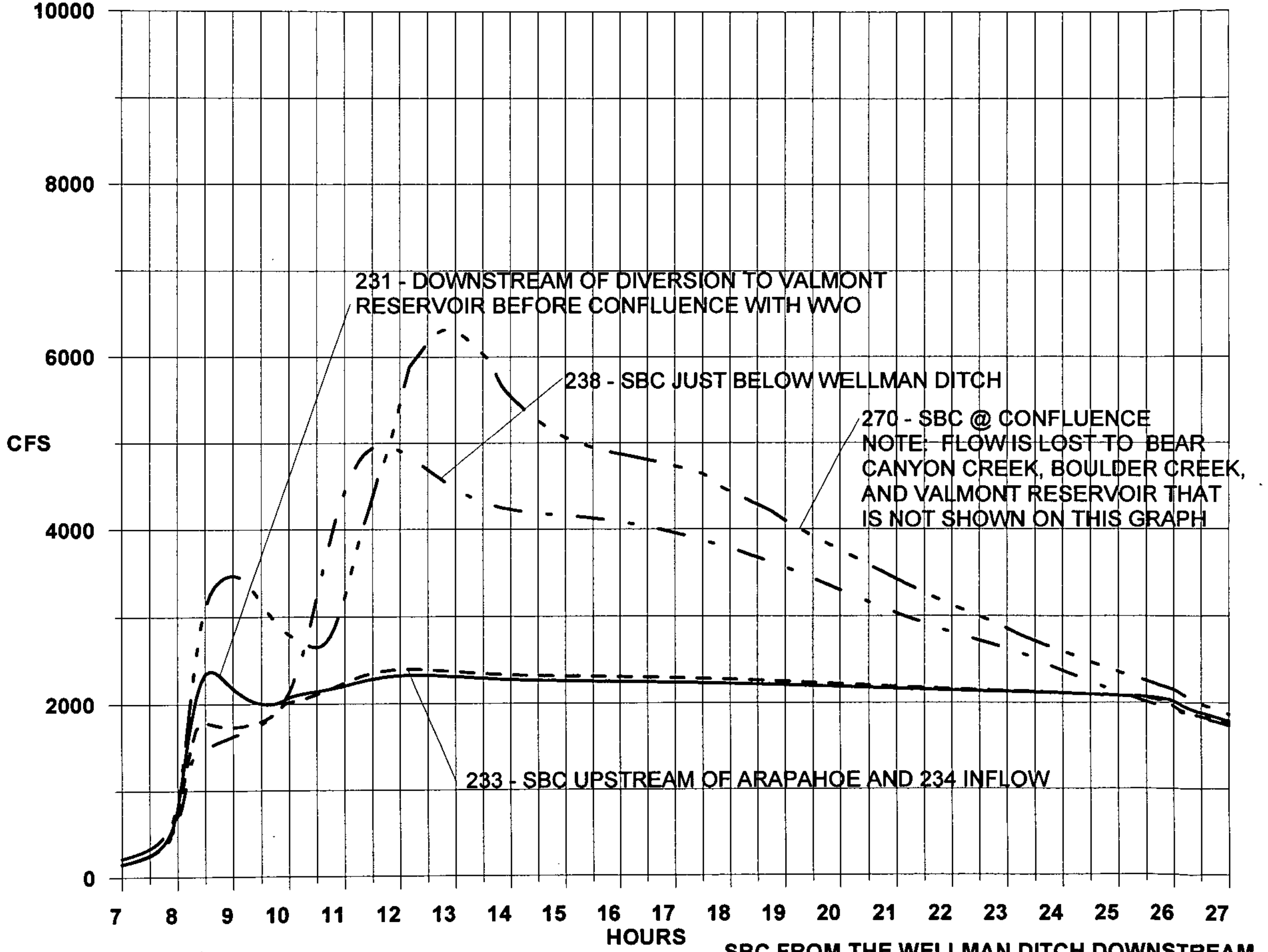
SBC FROM HIGHWAY 36 TO THE WELLMAN DITCH
TEA
FIGURE V-9



SBC_1td.out

SBC FROM THE WELLMAN DITCH DOWNSTREAM
TEA
FIGURE V-10

the following hydrograph (Figure V-11) shows the magnitude of the West Valley Overflow.

West Valley Overflow–Highway 36 to Foothills and Baseline

Figure V-11 hydrographs depict the spiky spill hydrograph (352) that overflows Highway 36, then the addition of local inflow midway between Highway 36 and Foothills (1915) and further downstream at the intersection of Foothills and Baseline (359). Again, little routing effect is shown.

West Valley Overflow on Golf Course

The West Valley Overflows onto the golf course shown on Figure V-12 are from South Boulder Creek below the Wellman (1906), overflows from the West Valley via the Wellman east of 55th (1907), and Dry Creek Ditch No. 2 and portions of the West Valley Overflow from west of 55th (1908 and 1361). The last element (1909) is the combined West Valley discharge from the golf course to the Dry Creek Ditch No. 2 flood channel north of Arapahoe.

Hydrographs Spilling to Bear Canyon Creek and Boulder Creek (not included in South Boulder Creek Direct Discharge to Boulder Creek)

Figure V-13 presents estimated South Boulder Creek hydrographs discharging from the South Boulder Creek watershed to Bear Canyon Creek at Foothills, Boulder Creek between Bear Canyon Creek and 55th, and to Valmont Lakes. These hydrographs are not included in element 270, the direct South Boulder Creek discharge to Boulder Creek.

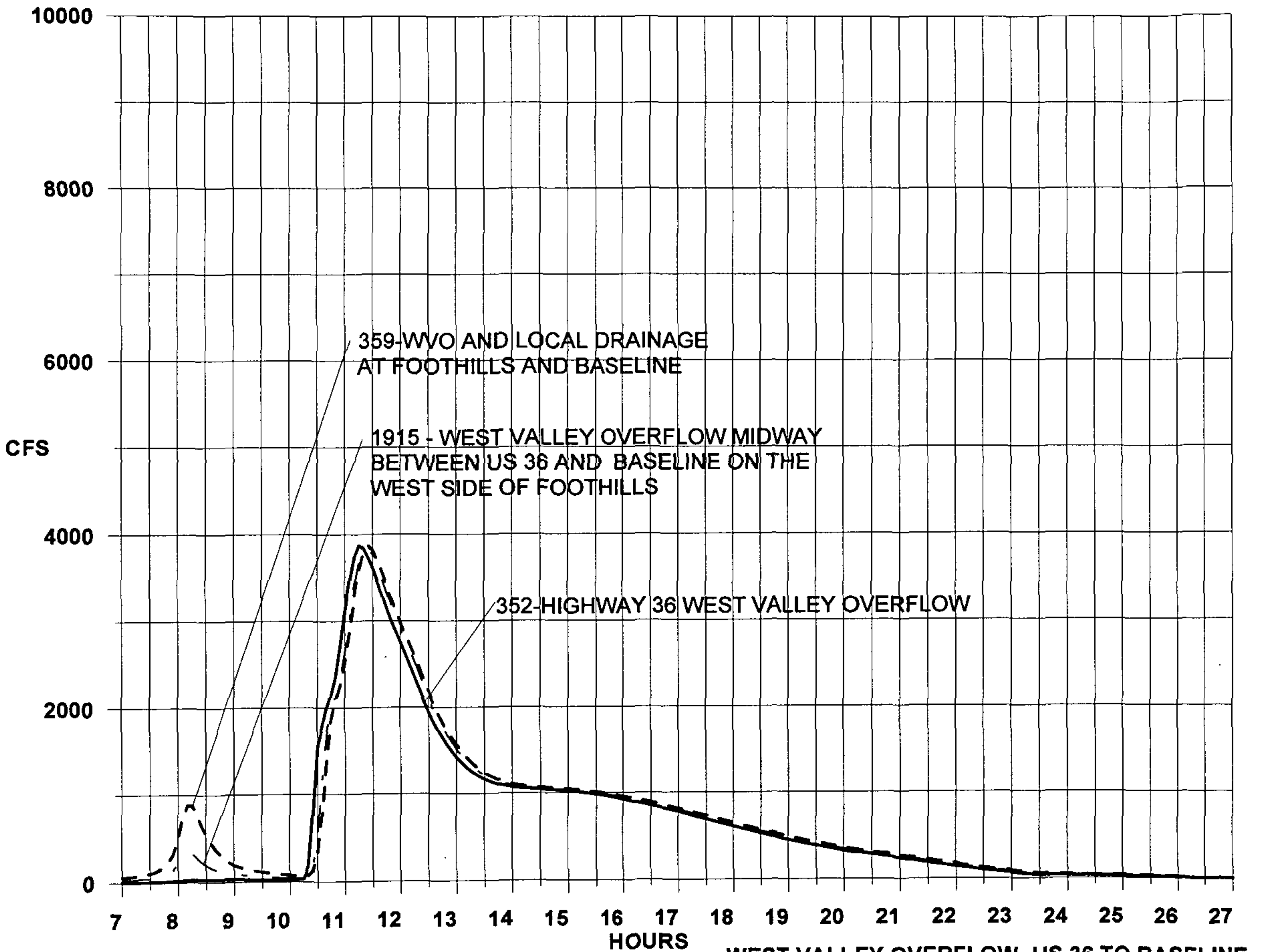
REASONABLENESS CHECKS

Several different types of reasonableness checks have been conducted, including statistical review of the Eldorado gage data and comparison with SWMM modeling results herein, comparisons with the Colorado Unit Hydrograph Procedure (CUHP) for representative basins, Unit Discharge reviews, and Regional Relations.

Comparison with Statistical Data at Eldorado Gage

The Eldorado gage has records of peak discharge going back to 1888. There are four periods of interest:

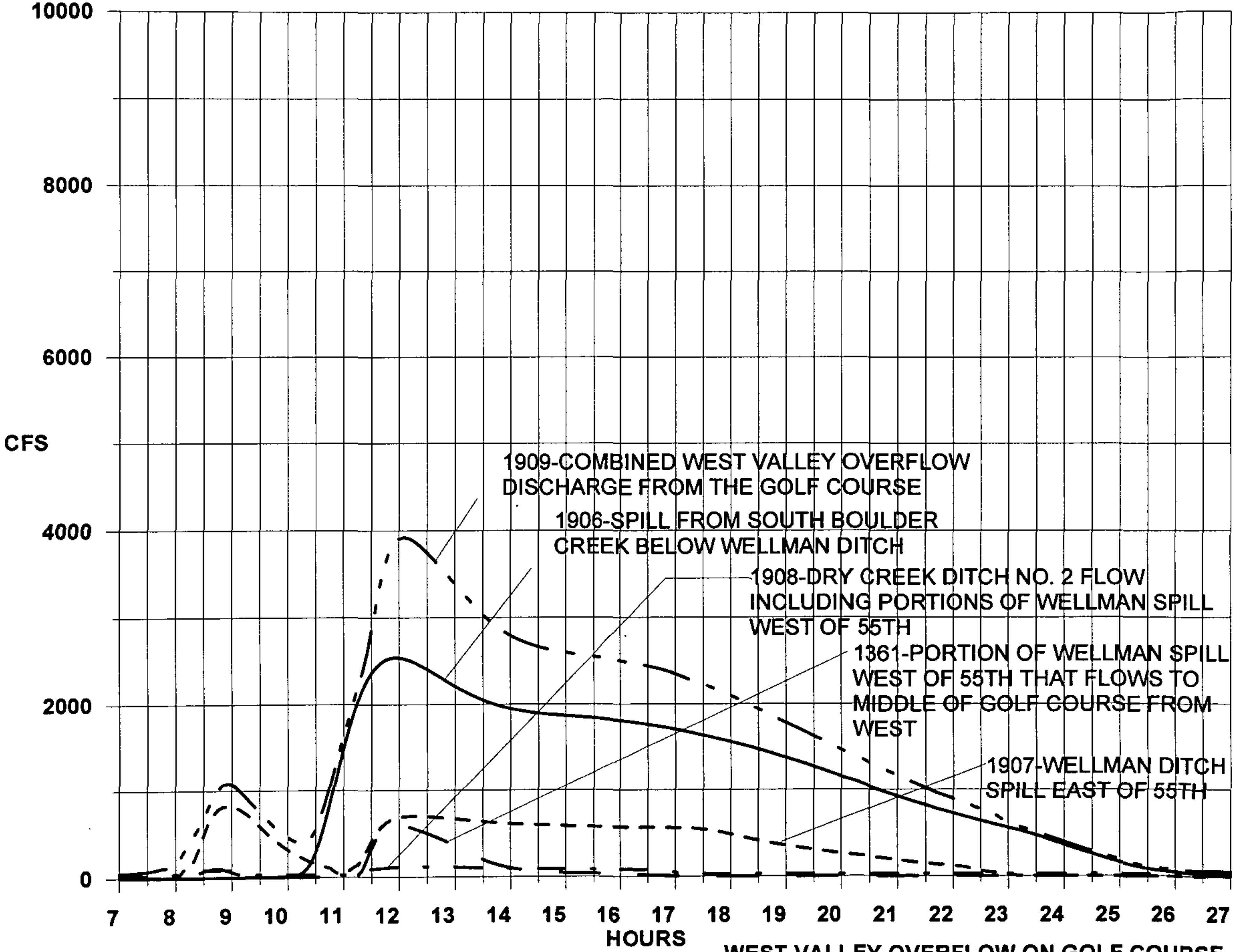
1. 1888 to 1953 Before Gross
2. 1956 to 1965 Gross with no stoplogs on spillway
3. 1965 to 1972 Gross with 5 foot high stoplogs
4. 1973 to 1995 Gross with 2 foot high stoplogs (present)



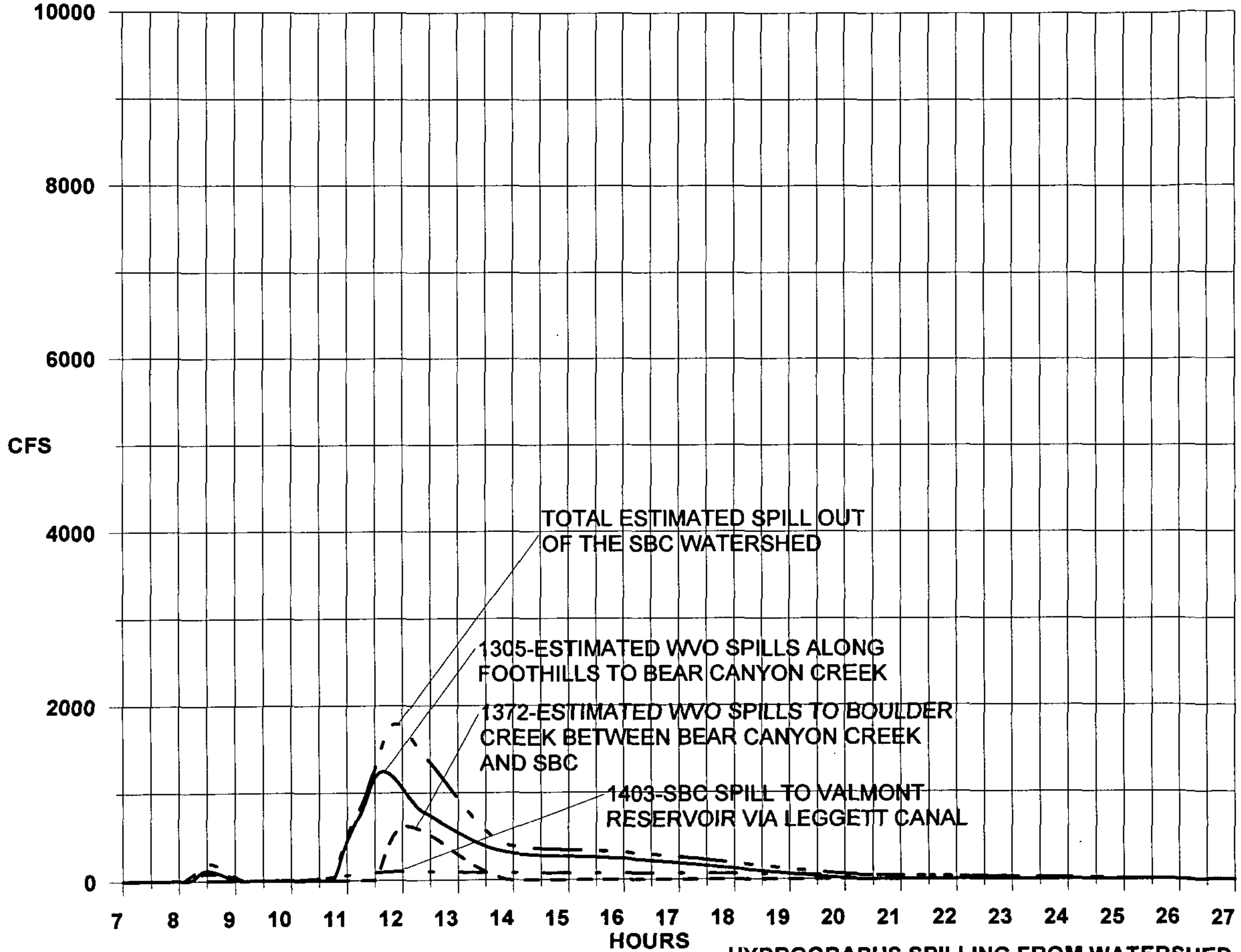
SBC_1td.out

WEST VALLEY OVERFLOW- US 36 TO BASELINE
TEA

FIGURE V-11



WEST VALLEY OVERFLOW ON GOLF COURSE
TEA
FIGURE V-12



HYDROGRAPHS SPILLING FROM WATERSHED
TEA
FIGURE V-13

These data are plotted on Figure V-14. The data for periods 1, 4, and 2 through 4 were fitted with a Log Pearson relationship following FEMA *guidelines* and "Guidelines for Determining Flood Flow Frequency."

The construction of the dam and the diversion facilities has had a substantial effect on both the average daily flows (per review of USGS Internet Data in Section VIII) and peak flows.

SWMM runs were completed for multiple frequencies and for three conditions:

1. With Gross removed to simulate historic conditions (Period 1),
2. With present dam conditions (Period 4),
3. With Gross configured to store *all* upstream flood waters.

The results were plotted on Figure V-14. The following observations are offered:

1. There is little difference between peak flow relationships for the SWMM runs with present conditions and with Gross storing all flood waters. Therefore, Gross already functions to control peaks at the gage site and downstream. The peaks at the gage site presently are dominated by the area below Gross.

2. The benefit of more storage at Gross would be to reduce volume at possible downstream storages, not necessarily to reduce peak flows.

3. Gross lowers the 100-year flood peaks at the Eldorado gage over conditions without Gross Reservoir. Gross has a substantial effect of lowering peaks for any given event (about 2000 cfs for the 100-year flood) over pre-dam conditions.

4. The plotting position of the 1938 event is nested within the predicted SWMM 50- to 100-year statistics. The review of the model results indicates that the peak flows at the gage are dominated by the area below Gross. The 1938 flood indicates that severe floods can still occur.

5. *Flood frequency based on the statistical analysis of gage data shows* significantly lower discharges than those based on the deterministic SWMM modeling, particularly for the frequent events. Therefore there are likely other significant factors occurring.

6. Likely explanations are that Gross is storing flood waters below the crest and that the rail line storages have affected the hydrology by reducing flood flows at the gage.

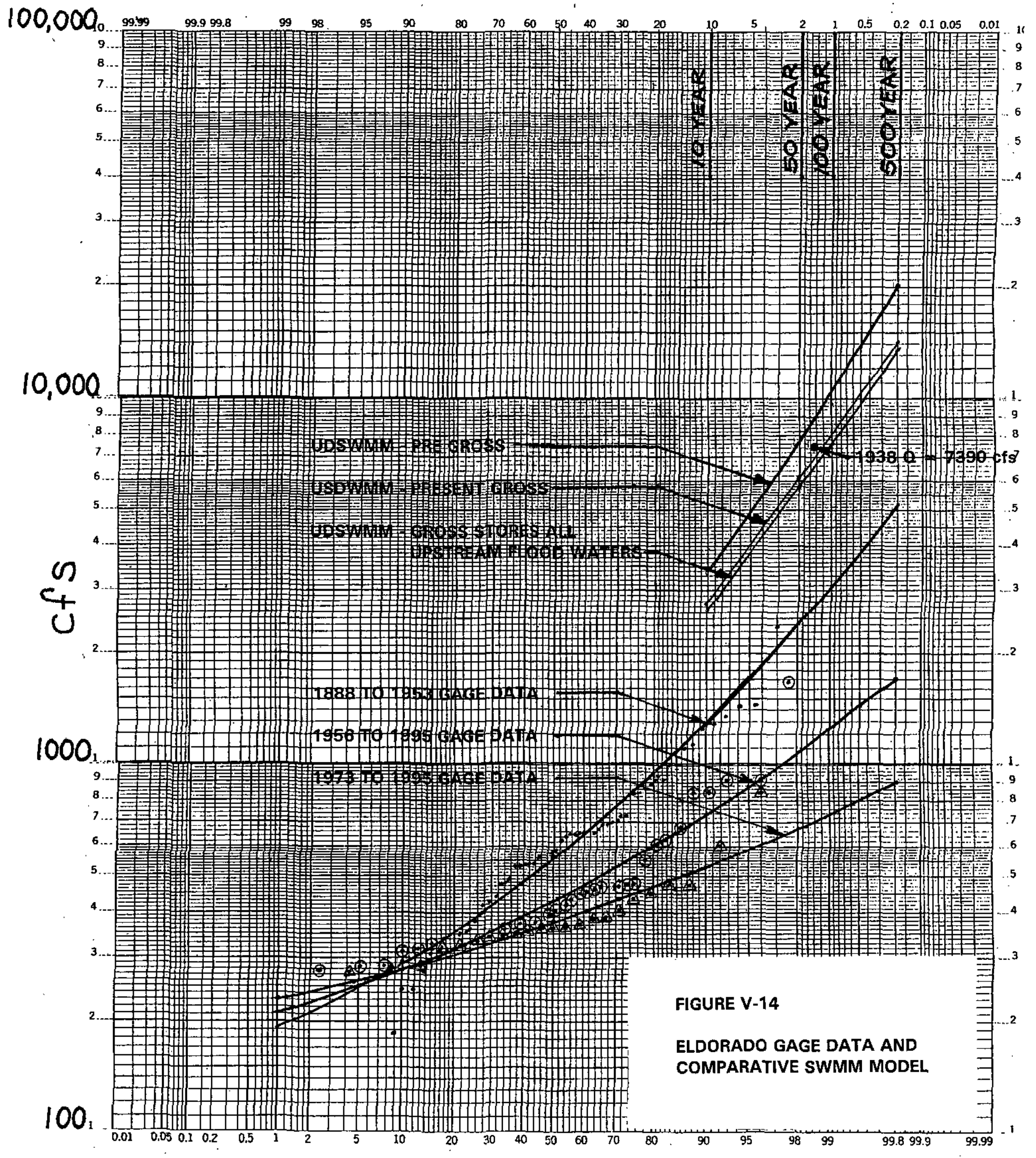


FIGURE V-14

ELDORADO GAGE DATA AND COMPARATIVE SWMM MODEL

7. There are likely three phenomena that affect this range of flood events. The lower flood range is likely caused by reservoir releases, plus local thunderstorms. The higher flood range is likely associated with upslope storms and thunderstorms flowing to the west. The middle range is likely associated with moisture flow from the west, possibly associated with thunderstorms. Thus floods occurring from these three phenomenon may follow three different statistical distributions. Therefore, the statistical analysis of all of the events together may give misleading predictions, probably low, for floods in the 10- to 100-year range.

CUHP - SWMM Modeling Comparisons

The Colorado Unit Hydrograph Procedure (CUHP) is essentially based on statistical analysis of gaged watersheds in the region, and, as such, serves as a basis of modeling comparison for the UDFCD region. Selected urban, rural, mountain, foothills, and lower basins were used in the development of shaping coefficients. As CUHP can't accept the 24 hour event in 5 minute increments, the rainfall was truncated to a shorter period, and input to both the original SWMM model and to CUHP, whose hydrographs were routed by SWMM.

Table V-1 presents the results of these comparisons.

The following conclusions are offered:

1. The results compare favorably for the urbanized watersheds.
2. CUHP appears to give higher results in the steeper mountain and foothill basins where it doesn't have the data base to support its use.
3. All results are generally reasonable.

Note that an error in the draft model was found in Basin 1540 where the percent impervious in the original SWMM model was given as 50%, which was corrected in this model.

Unit Discharge Comparisons

Figures V-15 through V-18 present unit discharge (cfs/acre) for mountain areas above and below Gross, foothills, and urban areas. Compared to other studies, the results appear reasonable.

Regional Relationship

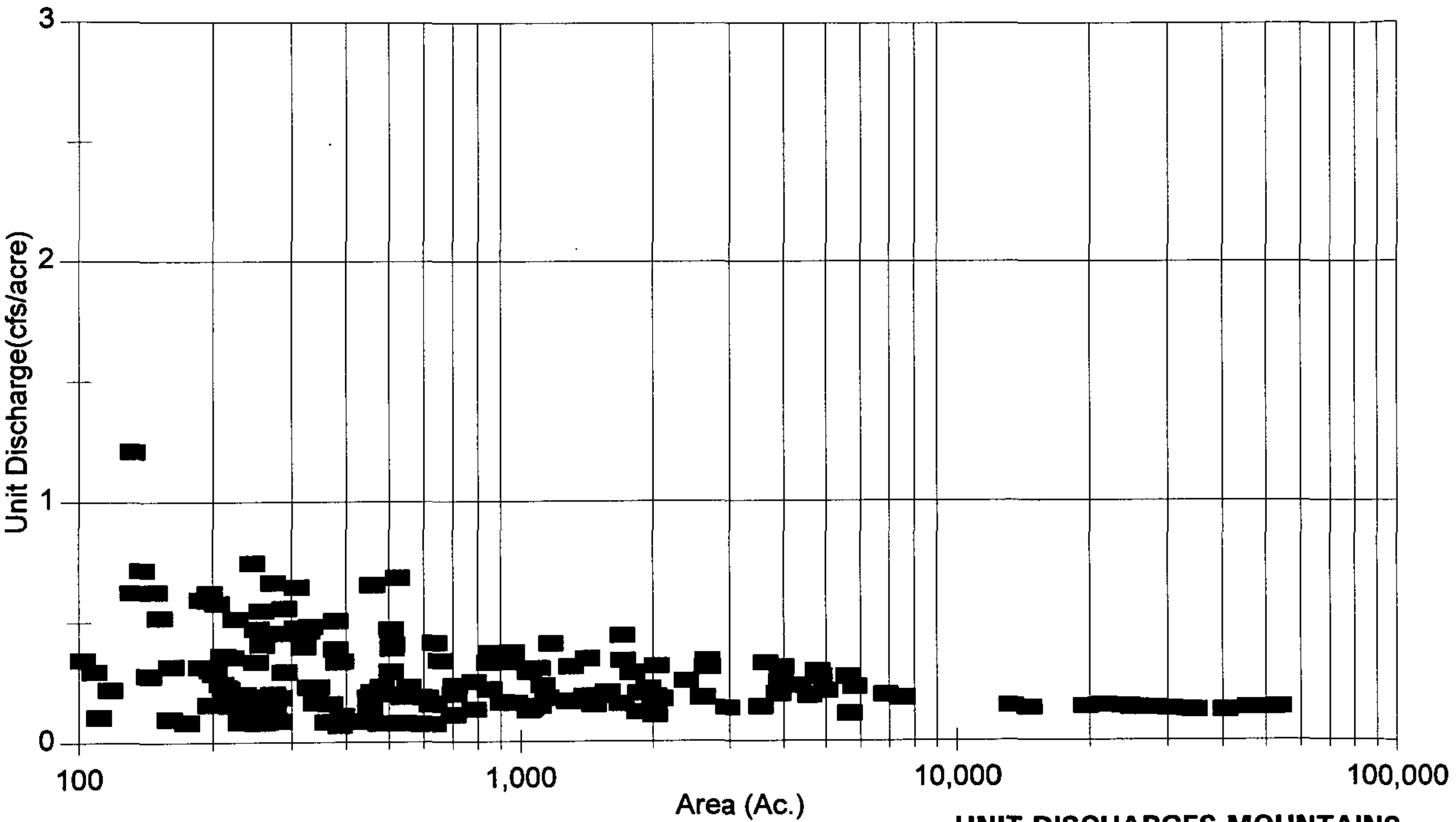
Figure V-19 is a map depicting regions in a CWCB regression analysis of past studies. Figure V-20 presents the CWCB regression compared to values from our study. We were informed to use the relationship for SPL-3, central foothills.

Table V-1

CUHP AND BASE SWMM MODEL COMPARISON

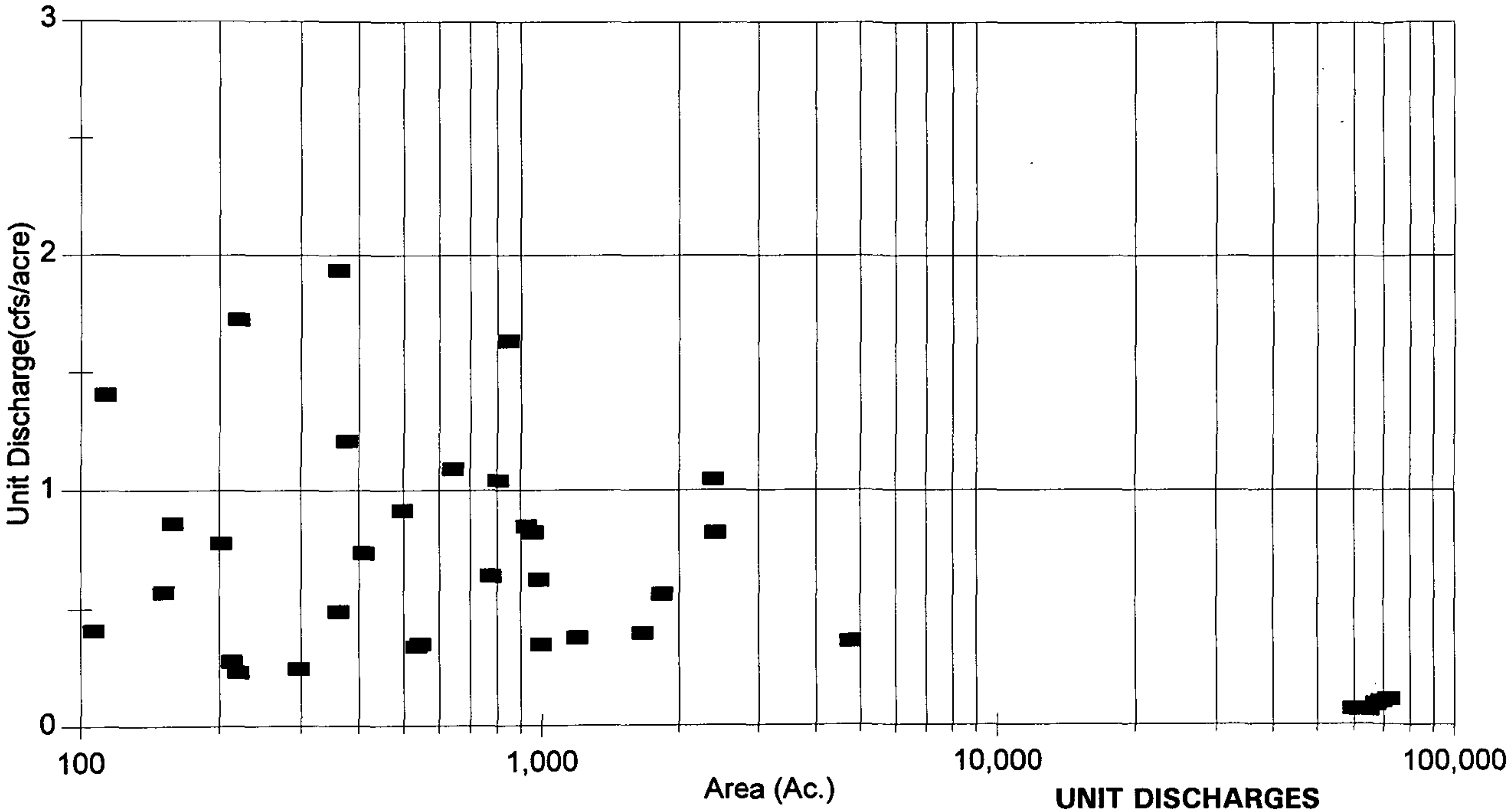
Feeder Basin	Node ID	Cumulative Drainage Area (acres)	CUHP/SWMM		SWMM		% SWMM varies
			Node type	Discharge (cfs)	Node Type	Discharge (cfs)	
South Draw - Mountain tributary with some development							
81	57	776	direct	630	channel	797	21.0
80	58	220	direct	46	channel	51	9.8
Flow	1001 | N/A*	996	direct	669	direct	537	-24.6
North Mountain Tributary to South Boulder Creek at Eldorado Springs							
1665	1666	390	direct	885	channel	795	-11.3
1605	1606	471	direct	901	channel	723	-24.6
Foothills - mostly rural, some development							
1540	1542	345	direct	273	channel	204	-33.8
Viele Watershed - Foothills, urbanized							
301	301	177	direct	403	channel	435	7.4
	300	177	reservoir	11	reservoir	11	0
	1922	177	channel	11	channel	11	0
299	299	72	direct	174	channel	191	8.9
	303	249	direct	185	direct	201	18.0
	298	249	reservoir	121	reservoir	127	4.7
297	297	587	channel	921	channel	902	-2.1
Frasier Meadows - Floodplain - Urbanized							
346	346	71	direct	207	channel	210	1.4
345	345	149	channel	371	channel	377	1.6
Country Club Park - Floodplain - Urbanized							
336	1329	31	direct	119	channel	80	-48.7
East Valley Hillside South of Arapahoe - Urbanized							
235	235	187	direct	258	channel	245	-5.3

* CUHP/SWMM NODE | SWMM NODE



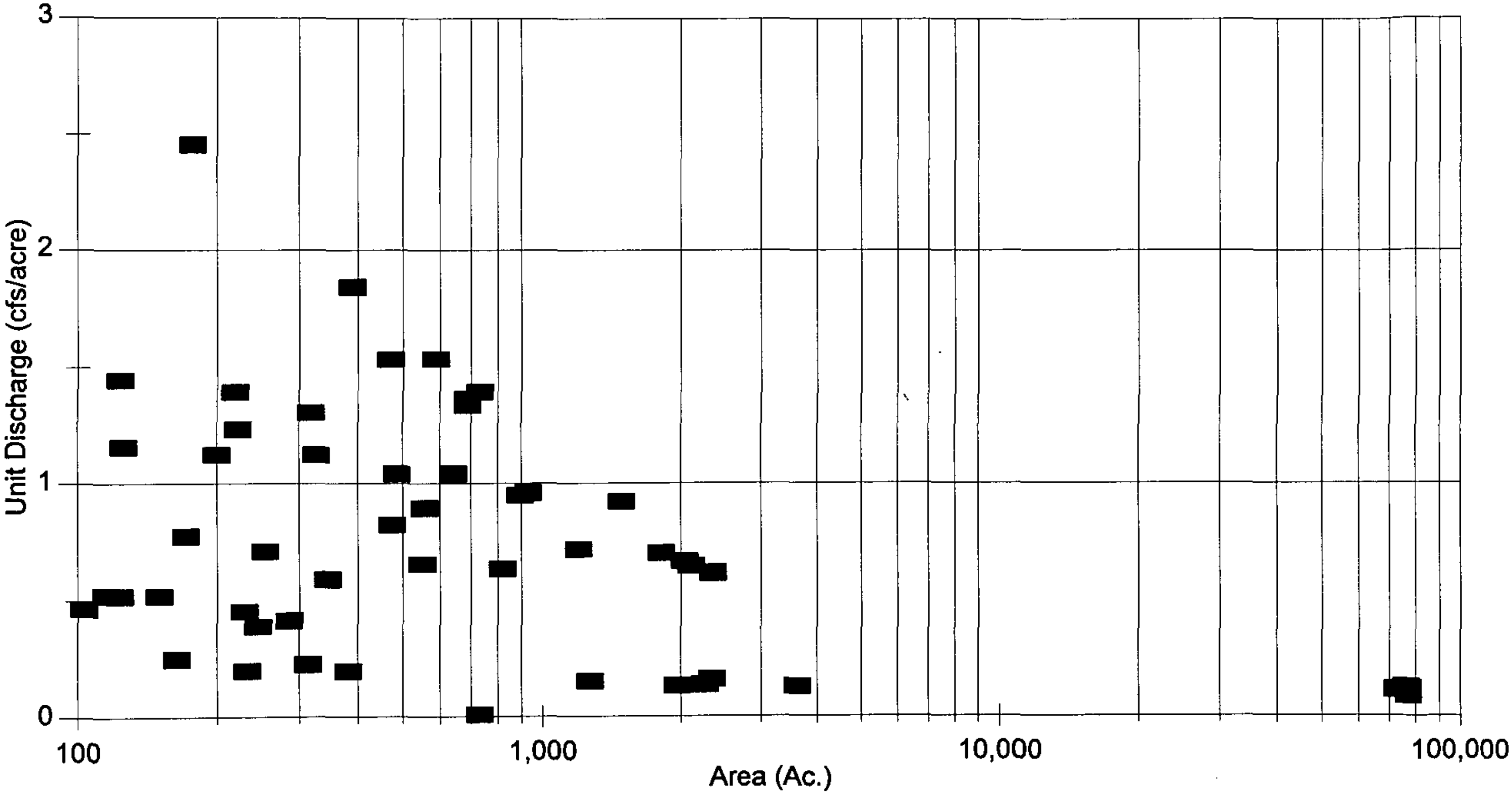
**UNIT DISCHARGES MOUNTAINS
ABOVE GROSS
TEA**

FIG V-15

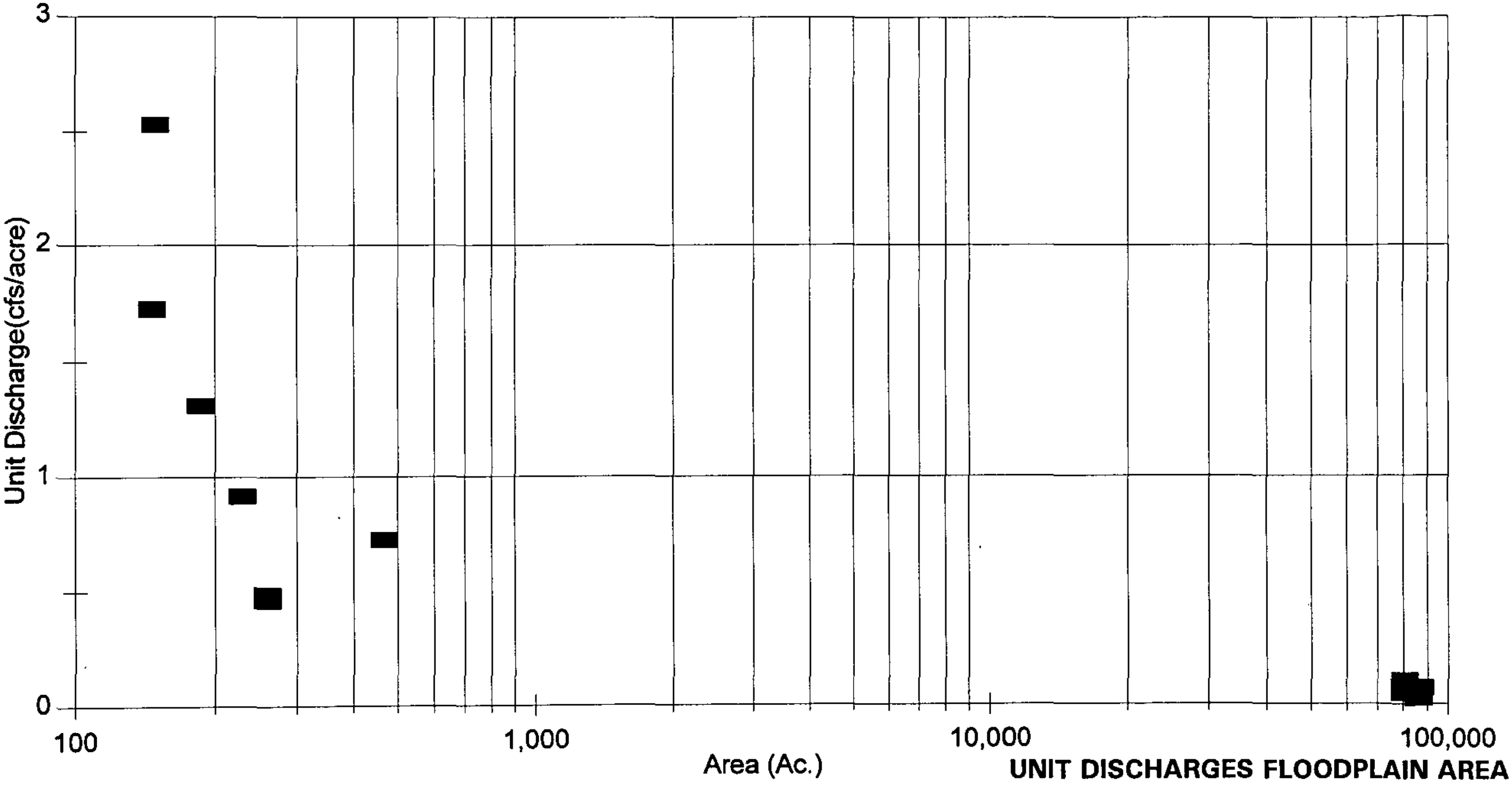


UNIT DISCHARGES
MOUNTAINS BELOW GROSS

TEA FIG. V-16



UNIT DISCHARGES FOOTHILLS
ELEMENT 48 TO ELEMENT 44
TEA FIG. V-17



UNIT DISCHARGES FLOODPLAIN AREA
ELEMENT 44 TO BOULDER CREEK
TEA FIG. V-18

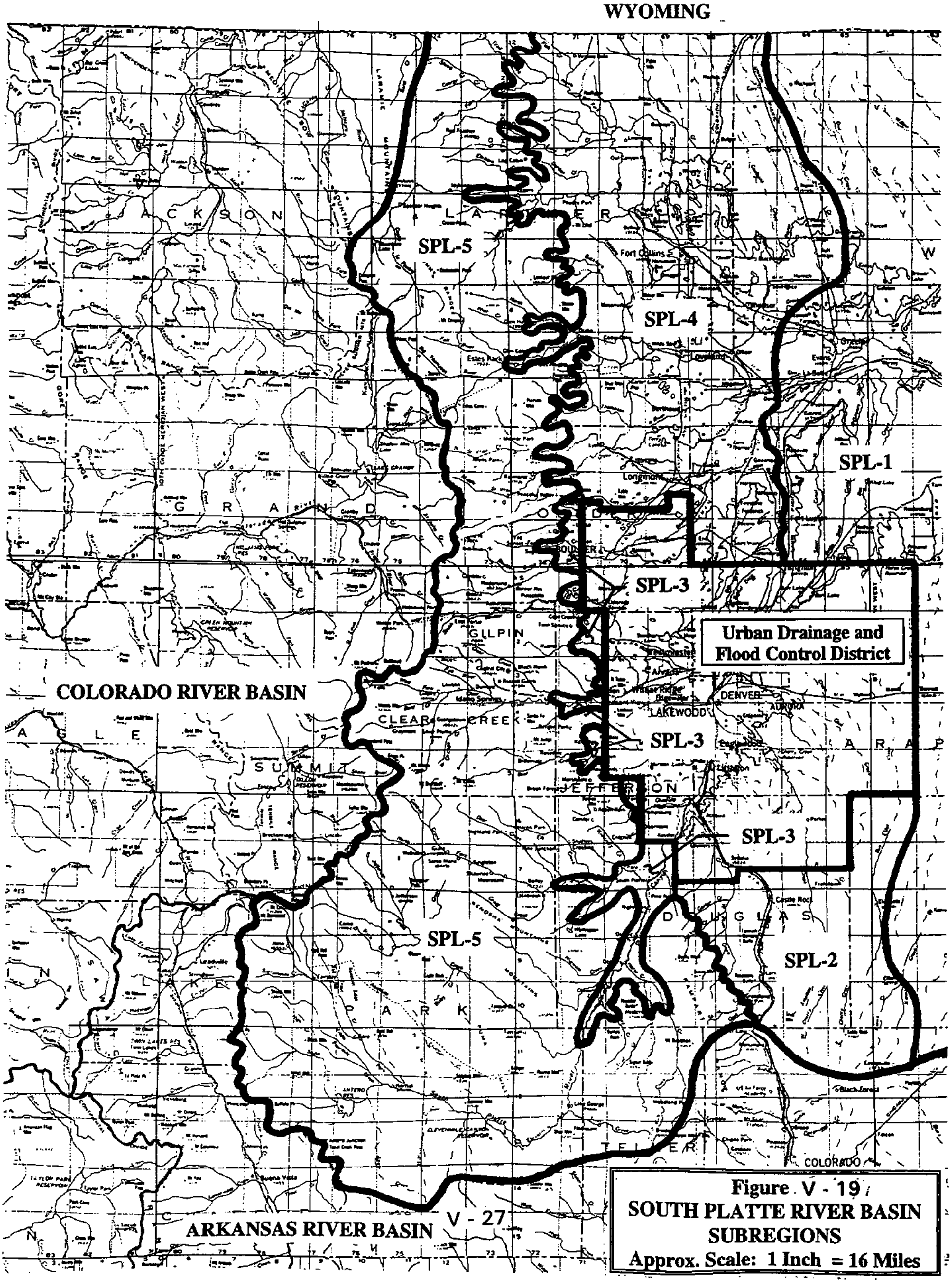
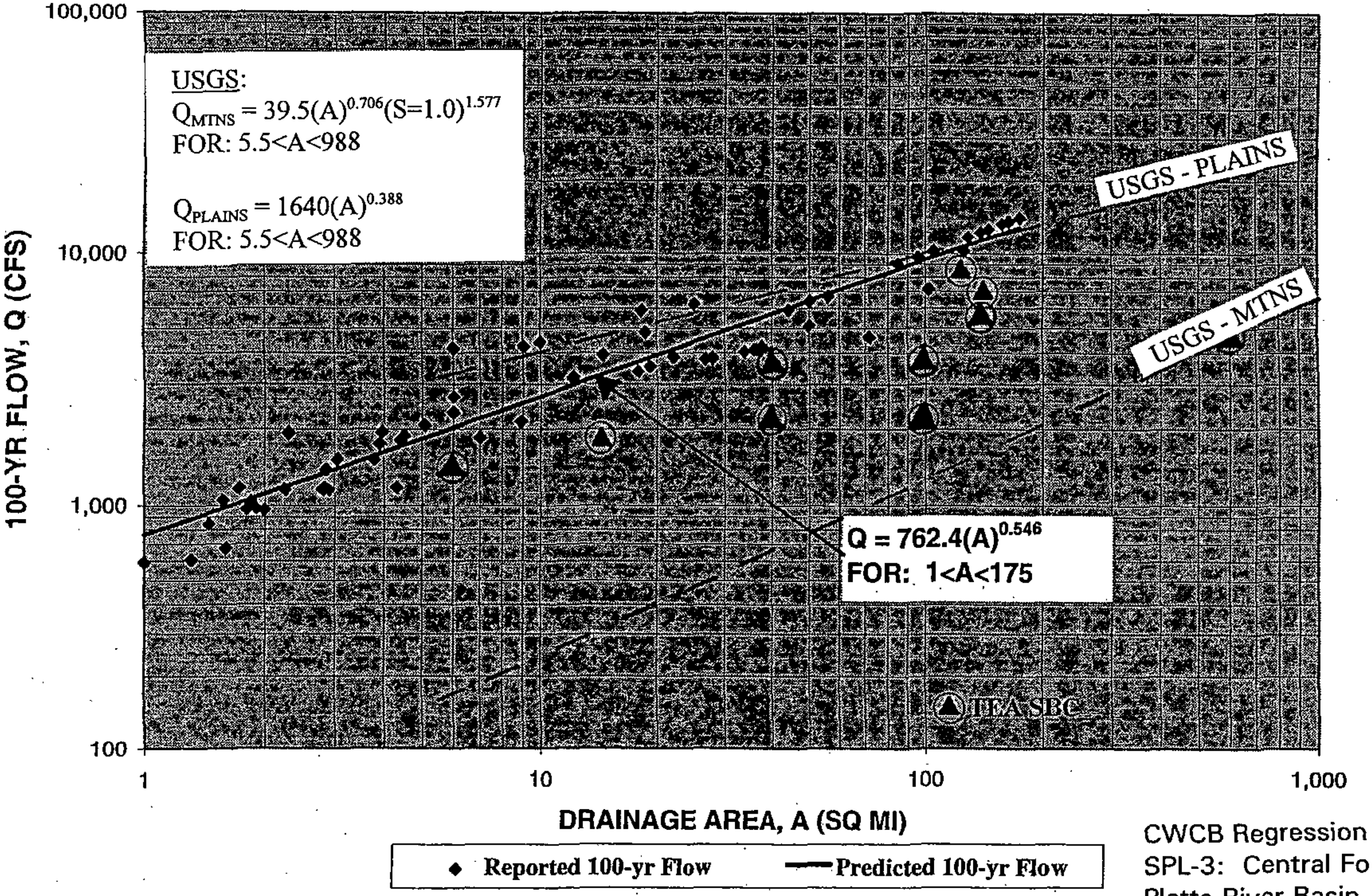


Figure V - 19
SOUTH PLATTE RIVER BASIN SUBREGIONS
Approx. Scale: 1 Inch = 16 Miles



SUBREGION SPL-3: CENTRAL FOOTHILLS
South Platte River Basin

* BASE GRAPH OBTAINED FROM CWCB STUDIES AND ANALYSIS

CWCB Regression - Subregion SPL-3: Central Foothills South Platte River Basin
TEA Figure V-20

The UDSWMM model values herein appear slightly lower than the foothills zones.

Since the foothill's adjacent mountain area up to South Draw dominates the peak South Boulder Creek discharges, we believe we have a reasonable comparison.

AGENCY AND CONSULTANT REVIEWS

The Agencies and consultants that have reviewed the draft of this report include:

Federal Emergency Management Agency - FEMA	John Liou, Ph.D., P.E.
Colorado Water Conservation Board - CWCB	Tom W. Browning, P.E.
Urban Drainage and Flood Control District - UDFCD	Bill DeGroot, P.E.

Consultants for the University of Colorado:

Love & Associates, Inc. Dave J. Love, P.E., Roger J. Peterson, Ph.D., P.E.

A review letter from Love and Associates is attached in Section VII.

All of the review comments were positive within the stated limitations herein.

John Liou of FEMA indicated that the study was adequate for the purposes of a master planning effort. However, FEMA would likely require dynamic stream flow modeling where significant floodplain storage exists, such as along South Boulder Creek and the West Valley Overflow from Highway 93 downstream. As indicated previously, this type of modeling would reduce peak flows downstream of Highway 93.

The Love & Associates letter generally concludes "We would not have a problem with utilizing the TEA hydrology as currently drafted so long as the Project Sponsors recognize it is conservative and that master planning efforts take this into account." Love concurs with the likely need to incorporate floodplain storage (dynamic stream flow routing) downstream of a point above Highway 93.

During review of the draft report, stream flow modeling parameters were discussed by Love, indicating the possibility that the selections made may result in overestimation of the flow. Table V-2 is a review of parameters and resultant velocity and Froude No.'s for representative streams selected by Bill Taggart as a reviewing principal responsible for the effort. Staff members had originally selected the values under TEA and UDFCD guidelines. Some values were changed in a test model based on the principal's review. This test illustrated that there exists no strong indication of high or low values.

PRINCIPAL REVIEW OF REPRESENTATIVE STREAMFLOW PARAMETERS AND RESULTS

ID	NAME & DESCRIPTION OF STREAM	MEASURED SLOPE %	TRIBUTARY AREA ACRES	UDSWMM 100 YEAR MODEL RESULTS			LOWER CHANNEL PARAMETERS & PERFORMANCE							OVERFLOW CHANNEL PARAMETERS & PERFORMANCE							REVIEW COMMENTS
				DISCHARGE CFS	DEPTH FEET	UNIT q CFS/ACRE	DEPTH FEET	WIDTH FEET	SIDE SLOPE H:V RATIO	ROUGHNESS	STREAM SLOPE %	VELOCITY FEET/SEC	FROUDE NO.	CUMM DEPTH FEET	WIDTH FEET	SIDE SLOPE H:V RATIO	ROUGHNESS	STREAM SLOPE %	VELOCITY FEET/SEC	FROUDE NO.	
MOUNTAIN TRIBUTARIES ABOVE GROSS																					
158	JENNY LIND GULCH, 1.1 MILE LONG S. TRIBUTARY	6.58%	1865	231	1.2	0.12	1.22	20.0	5.0	0.050	6.19%	7.29	1.29	NOT APPLICABLE							STREAM MIGHT BE NARROWER, EFFECTIVE SLOPE FLATTER AND/OR ROUGHNESS HIGHER. RESULTS COULD BE LOWER OR HIGHER, REASONABLE CHOICE.
60	SMALL SOUTH TRIBUTARY, UPSTREAM OF BOILING AND BLACK GULCHES	13.00%	225	118	1.0	0.52	0.96	12.0	5.0	0.060	12.62%	7.20	1.47	NOT APPLICABLE							STREAM MIGHT BE NARROWER, EFFECTIVE SLOPE FLATTER AND/OR ROUGHNESS HIGHER. IN TEST MODEL LOWERED STREAM SLOPE TO 8%. REDUCED LOCAL STREAM FLOW 4%, BUT SLIGHTLY INCREASED SBC FLOW. REASONABLE CHOICE.
62	BOILING GULCH, 0.78 MILE LONG SOUTH TRIBUTARY	9.25%	2039	642	2.1	0.31	2.09	12.0	5.0	0.070	26.29%	13.70	2.02	NOT APPLICABLE							STREAM MIGHT BE ROUGHER AND/ OR EFFECTIVE SLOPE FLATTER. IN TEST MODEL LOWERED STREAM SLOPE TO 7%. THIS REDUCED LOCAL STREAM FLOW LESS THAN 1%, BUT INCREASED SBC FLOWS DUE TO TIMING. RESULTS OKAY.
SOUTH BOULDER CREEK ABOVE GROSS																					
														3.80	*		*		5.05	1.00	* WITH ADJUSTED ROUGHNESS TO DUP. SWMM.
167	SBC ABOUT 1 MILE UPSTREAM OF JENNY GULCH AND BELOW MOFFATT TUNNEL	1.68%	14569	1984	3.8	0.14	3.00	32.0	4.0	0.040	1.00%	6.52	0.75	4.25	250.0	10.0	0.050	1.00%	3.26	0.54	VELOCITY AND FROUDE NUMBERS REASONABLE, BUT MIGHT BE HIGHER RESULTING IN HIGHER FLOWS. HOWEVER, SWMM DOESN'T SIMULATE FLOOD PLAIN STORAGE THAT EXISTS. RESULTS OK.
MOUNTAIN TRIBUTARIES BELOW GROSS																					
56	SOUTH DRAW TRIBUTARY, JUST ABOVE ELDORADO STATE PARK.	9.76%	1642	133	2.7	0.07	2.74	25.0	4.0	0.070	9.30%	10.51	1.26	NOT APPLICABLE							TEA HAS WORKED ON WATERSHED ABOVE. THIS STREAM ALSO HAS SEGMENTS WITH MORE OF A VEE SECTION WHERE VELOCITIES WOULD BE HIGHER. A NARROWER SECTION WOULD GIVE HIGHER FLOWS, BUT PROBABLY DESTABILIZE. EST. IS OK FOR NOW, BUT REASSESS WITH ANY RAILROAD STORAGE STUDY.
														2.71	*		*		22.19	4.61	* WITH ADJUSTED ROUGHNESS TO DUP. SWMM.
1606	NORTH SIDE TRIBUTARY AT BOUNDARY TO FOOTHILLS AND ELDORADO CANYON.	9.02%	471	723	2.7	1.54	2.00	5.0	4.0	0.045	8.12%	1.77	1.69	3.67	25.0	3.0	0.060	8.12%	8.88	1.31	THIS IS A STEEP STREAM WITH LESS VEGETATION AND A DEFINITE OVERFLOW SECTION. APPEARS SWMM MAY HAVE DIFFICULTY WITH THIS OVERFLOW COMBINATION. FLOW MAY BE SOMEWHAT ON THE HIGH SIDE, BUT NOT UNREASONABLE.
SOUTH BOULDER CREEK BELOW GROSS THROUGH ELDORADO CANYON																					
														6.40	*		*		20.26	2.40	* WITH ADJUSTED ROUGHNESS TO DUP. SWMM.
1	SOUTH BOULDER CREEK ABOVE MARTIN GULCH	2.57%	64741	4277	6.4	0.07	4.00	30.0	2.0	0.055	2.40%	9.04	0.66	8.91	55.0	2.0	0.065	2.40%	9.12	0.78	THIS IS A RUGGED, STEEP STREAM. BY STRAIGHT MANNINGS EQUATION THE OVERFLOW SHOULD BE FINE, BUT STAGE ON SWMM OUTPUT INDICATES POSSIBLE HIGHER VELOCITIES MAY BE OCCURRING, ACCELERATING THE OVERFLOW FROM GROSS. POSSIBLE PROGRAM PROBLEM. HIGHER ROUGHNESS MIGHT MITIGATE IN FUTURE REFINEMENTS.
														6.20	*		*		8.31	1.22	* WITH ADJUSTED ROUGHNESS TO DUP. SWMM.
50	SOUTH BOULDER CREEK IN ELDORADO STATE PARK	2.50%	71466	7683	6.2	0.11	4.00	40.0	5.0	0.060	2.95%	6.79	0.69	7.06	150.0	75.0	0.080	2.95%	4.92	0.63	SUBSEQUENT TO THE MODEL HERE, WE CONDUCTED A FLOOD PLAIN ANALYSIS FOR STATE PARKS. THE AVERAGE HEC-2 VELOCITY WAS ABOUT 10 FPS. THE VALUES HERE ARE REASONABLE, BUT THE SLOPE SHOULD HAVE BEEN FLATTER (2.1%) PER FIELD SURVEY AND THE OVERBANK ROUGHNESS LESS. LIKE ELEMENT 1, SWMM MAY HAVE SOME COMPUTATIONAL PROBLEMS WITH OVERFLOW SECTION.
														8.99	*		*		8.11	0.73	* WITH ADJUSTED ROUGHNESS TO DUP. SWMM.
48	SOUTH BOULDER CREEK IN ELDORADO SPRINGS	7.30%	72077	7915	9.0	0.11	5.00	30.0	2.0	0.070	1.33%	5.98	0.53	10.41	200.0	2.0	0.085	1.30%	5.89	0.46	THIS IS A RUGGED, STEEP STREAM THROUGH ELDORADO SPRINGS. THE EFFECTIVE OVERFLOW WIDTH MAY BE LESS, AND THE STREAM EFFECTIVE SLOPE STEEPER, THUS VELOCITIES MIGHT BE HIGHER. THE G&O HEC-2 MODEL HAD A VELOCITY OF 7.2 TO 12.4 FPS FOR 60% OF THE FLOW HERE. IN TEST MODEL STEEPENED TO 4%, DISCHARGES INCREASED 1.5%. REASONABLE, BUT COULD BE REFINED IN SUBSEQUENT EFFORTS.
LOWER TRIBUTARY																					
297	VIELE TRIBUTARY ABOVE TABLE MESA AND SOUTH LOOP ROAD	2.70%	587	902	4.6	1.54	4.61	6.0	3.0	0.045	2.50%	9.87	1.06	NOT USED							THE EFFECTIVE STREAM SLOPE IS PROBABLY FLATTER, AS THERE ARE A SERIES OF DROPS AND CULVERTS. THUS IF THE MODEL IS REFINED FOR LOCAL DRAINAGE PURPOSES, STREAM GEOMETRY AND PROFILE SURVEYS SHOULD BE CONDUCTED. IN TEST MODEL FLATTENED TO 1.6%, DISCHARGES DECREASED 5.9%, BUT NO CHANGES DOWNSTREAM OF HWY 36. IMMEDIATELY DOWNSTREAM, THERE IS AN OFFLINE STORAGE WHICH IS FUNCTIONING AND TRIMS THE PEAK, THUS THERE IS NO SIGNIFICANT EFFECT ON SBC FLOWS.
LOWER MAIN STREAMS - SOUTH BOULDER CREEK AND WEST VALLEY OVERFLOW																					
1521	WEST VALLEY OVERFLOW BELOW HIGHWAY 93 TO MOBILE HOME AREA	1.15%	2175	7373	4.9	NOT APPLIC-ABLE	2.00	4.0	4.0	0.050	0.93%	4.50	0.50	4.83	500.0	25.0	0.060	0.93%	4.50	0.50	APPEARS REASONABLE, EXCEPT DYNAMIC STREAMFLOW ROUTING OF FLOOD PLAIN STORAGE NOT SIMULATED
														3.86	*		*		1.92	0.32	* WITH ADJUSTED ROUGHNESS TO DUP. SWMM.
1506	SOUTH BOULDER CREEK FROM MARSHALL ROAD TO LEVEE AREA	1.05%	79714	2123	1.2	NOT APPLIC-ABLE	2.50	33.0	4.0	0.060	0.54%	2.69	0.36	3.69	800.0	10.0	0.065	0.54%	1.87	0.30	THE VELOCITIES HERE APPEAR LOW AS HEC-2 HAS 6.6 FPS FOR SIMILAR FLOWS, HOWEVER DYNAMIC STREAMFLOW ROUTING OF FLOOD PLAIN STORAGE IS NOT SIMULATED. COMPARING LAG TIME OF HYDROGRAPHS THROUGH REACH DOESN'T SHOW PROBLEMS.
														3.97	*		*		4.07	0.48	* WITH ADJUSTED ROUGHNESS TO DUP. SWMM.
241	SOUTH BOULDER CREEK FROM VIELE CONFLUENCE TO BASELINE	1.01%	84351	4835	3.8	NOT APPLIC-ABLE	3.00	65.0	2.0	0.043	1.00%	6.73	0.71	3.99	1200.0	200.0	0.055	1.00%	2.46	0.47	STREAM MIGHT BE NARROWER, EFFECTIVE SLOPE FLATTER AND/OR ROUGHNESS HIGHER. RESULTS COULD BE LOWER OR HIGHER, REASONABLE CHOICE. APPEARS SWMM HAVING DIFFICULTY WITH SECTION. REFINE IN SUBSEQUENT MODELING WITH REAL SECTIONS AND DYNAMIC ROUTING OF FLOOD PLAIN STORAGE

The study could be improved first by dynamic storage routing in the lower valley, second by surveys and refined flow split analysis, and third (and to a lesser degree) by field section surveys to more accurately depict the major tributaries and South Boulder Creek above the Highway 93 splits.

CONCLUSIONS

1. The UDSWMM hydrology model results are reasonable and compare well with other studies and methodologies in the region.
2. Any apparent disparities between statistics of Eldorado Stream gage data and UDSWMM modeling results are likely associated with storage taking place below the level of the Gross Spillway crest and multiple storages along the rail line to the Moffatt Tunnel. Since these storages cannot be presently used in any modeling, the use of the statistical database for determining flood frequency is not appropriate.
3. Improved stream flow modeling can make the results along South Boulder Creek more reliable and realistic.
4. The above review indicates that the model results are reasonable and valid.
5. The major factors in improving the reliability and realism of the model would be to:
    a) Explore the possibility of firming up institutionally the flood storage function that has occurred at Gross Reservoir.

    b) Explore the storages along the rail line and meet with the Railway to pursue efforts to make these storages permanent and in compliance with standard storage/dam criteria.

    c) Refine the South Boulder Creek stream routing elements and modeling by:

    - Refining hydraulic split modeling along Highway 36 and other locations.
    - Conducting limited cross section surveys of the streams and controls for critical splits, and using a dynamic storage routing algorithm to model the South Boulder Creek and the West Valley Overflow.
    - Conducting limited cross section surveys below Gross to the mouth of the canyon.

SECTION VI

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SECTION VII

RAINFALL MEMORANDA AND RESPONSES, DRAFT REPORT REVIEW

- CITIZEN LETTER
- TEA APPROACH MEMO
- TWO LETTERS TO NOAA
- RETURN LETTER FROM NOAA
- RETURN FAX FROM NOAA
- JOHN HENZ LETTER
- LOVE & ASSOCIATES, INC. REVIEW

RECEIVED JUN 2 9 1999

June 25, 1999

Mr. William C. Taggart, President
Taggart Engineering Associates, Inc.
2480 West 26th Ave., Suite 340-B
Denver, CO 80211

RE: South Boulder Creek Hydrologic Analysis

Dear Mr. Taggart,

It was good to meet you at the recent meeting of parties working on the South Boulder Creek hydrologic analysis. As I mentioned to you, I am a homeowner in the effected area and also a meteorologist with expertise in the hydrological cycle. Enclosed is a copy of a brief assessment by the National Research Council of the National Academy of Sciences regarding the issue of probable maximum precipitation estimates that you will use in your calculations. The assessment concludes that, despite some weaknesses, these maps of probable maximum precipitation (PMP) by the NOAA Office of Hydrology are still the best source for such estimates. Indeed, the report concludes that the use of PMP is a very conservative standard and recent paleohydrologic analysis of the Rockies indicate this procedure is consistent with flood events in this region back to the last 10,000 years.

The PMP maps for the western U.S. are available at the DOC/NOAA library in Boulder and are also now available digitized on the web at the western regional climate center at site www.wrcc.dri.edu/pcpnfreq.html. These maps are from 1973 and so I checked with the NOAA Office of Hydrology to see if an update was imminent. Although the Office of Hydrology would like to update the maps, an update is not likely for another 3-5 years. There are 20 years of automated raingauge data for the area, but I do not know if these data are digitized nor if doing a PMP for these data is in your scope of work. I doubt it would be very helpful to analyze these data, since there have been no great flood events in the last 20 years on South Boulder Creek. I understand these data are held by the Denver Urban Storm and Drainage District. If you are going to do a local PMP for these data, I would be interested in participating.

Daily rainfall data for Boulder are available on our web site at www.cdc.noaa.gov/Boulder.data.daily.html. These data are from a site in downtown Boulder. For the 5-8 May 1969 flood, they show that event was a multi-day event with daily rainfall totals of 1.25, 1.75, 3.37, and 1.00 inches of rain on each day. Weather watcher reports from south Boulder (unofficial) show 3-day totals of just greater than 9.00 inches of rain total for 5-7 May of 1969, slightly greater than in downtown Boulder, but not extraordinarily different. The state climatologist has compiled a report on storms that exceed the 100-year event and reports a maximum of 15 inches over 4 days (Colorado Extreme Storm Precipitation Data Study, Climatology report #97-1). The most extreme rainfall event recently along the front range was the Fort Collins flood of a 28 July 1997. A detailed summary of this event was recently published in the Bulletin of the American Meteorology Society and I can provide you a copy of this. This event is considered to have a return frequency of between 500-1000 years. I have copies of both of these reports.

If I can be of any additional assistance, please do not hesitate to contact me. I have also included a copy of my business card, although I am writing to you here as a Boulder resident.

Sincerely,

John J Bates

John J. Bates, Ph.D. Meteorology
862 Cypress Dr.
Boulder, CO 80303

Attachments included

Xc: Mr. Alan Taylor, City of Boulder
Mr. Rich Lopez, Deputy Mayor

TAGGART
ENGINEERING ASSOCIATES, INC.

2480 West 26th Avenue • Suite 340-B • Denver, Colorado 80211 • (303) 455-3600 • FAX (303) 455-9929

MEMORANDUM

TO: Bill DeGroot, P.E.
Urban Drainage and Flood Control District

FROM: Bill Taggart, P.E.
Walt Hime, W.H

DATE: July 22, 1999

RE: South Boulder Creek - Proposed Draft Approach to Rainfall Volume and Comparison with Previous U. S. Army Corps of Engineers Assumptions

This memorandum provides proposed rainfall volume data to be used in the Hydrologic Analysis of South Boulder Creek. The existing U. S. Army Corps of Engineers (USACE) hydrology used only the 6 hour duration NOAA rainfall, which was distributed by their own methodology rather than preserving the other NOAA statistics for peak 5 minute to 3 hour values. Thus their methodology does not agree with the District or Boulder Criteria. Our previous investigation indicated that rainfall was underestimated. Thus, rainfall data used in the existing USACE hydrology is presented for comparison. The following numbers should be taken as a draft as we haven't worked on correcting the basin areas, double checked all the numbers, and are reviewing the literature regarding the proper use of area reduction factors and storm rainfall distributions.

PROPOSED RAINFALL

The South Boulder Creek hydrologic analysis will be based on existing NOAA rainfall information. For areas within the Urban Drainage and Flood Control District, the analysis will be based on the Urban Storm Drainage Criterial Manual and Boulder Manual rainfall information with adjustments for the larger watershed. Basically a 24 hour duration storm with the 2 hour Boulder storm imbedded in the event and other NOAA statistics for intermediate durations will be preserved (e.g. 6hr, 3hr). Rainfall will be bracketed by rough elevation ranges following the four Boulder zones to reflect the large altitude range of the watershed. Custom data for the highest zone IV will be used rather than using zone III data for zone IV per the Boulder Manual.

Rainfall above Gross Reservoir will be adjusted by NOAA reduction factors based on the entire watershed area. Rainfall below Gross will be adjusted based on the area downstream of the reservoir

We are still considering the use of a total 6 hour event versus a total 24 hour event. Based on previous USACE modeling, the time from the beginning of peak rainfall to peak runoff at Boulder Creek is 2.5 hours, though we suspect a longer lag of 3 to 3.5 hours with better stream routing. The flow from above Gross is delayed about 4 hours. The peak flow into Gross lags peak rainfall about 3 hours, with about 5.25 hours of lag immediately below Gross. Thus, a 6 hour duration event may not truly reflect runoff response at the mouth from the most distant parts of the basin. A 6 hour duration event would presumably use a larger area reduction factor, and thus reduce the model rainfall. A larger 24 hour duration event would have both greater total rainfall and a smaller area reduction factor. It would have more volume, but we doubt any significant difference in peak flows in the study area.

USACE RAINFALL

The rainfall values used in the USACE study were obtained from the NOAA Precipitation-Frequency Atlas of the Western United States, Atlas 2, Volume III, Colorado. Adjustments for depth-area were based on NOAA depth-area relationships. Adjustments for the length of record were made using Beard's table of expected probability adjustments for various lengths. Spatial variation was accounted for by the use of several hyetographs. USACE reported that the time variation of the 6 hour rainfall for each hyetograph was based on a study of hourly precipitation data recorded for the South Platte River basin. They presented a ratio table but no documentation. One-half hour intervals were used to distribute the rainfall.

TEA COMPARISON TABLE

The following table presents our first draft of rough rainfall volume in terms of inches and Acre-Feet for the suggested methodology and the previous USACE work. We suggest you and the sponsor carefully review and concur or direct adjustments. At the following meeting we hope to present detailed rainfall distributions. Our basic intent is to place the peak rainfall 2 hour duration storm in the manual at time 6 hours (25% of the total duration) with alternating lesser values about this peak, until hour 12, which will be followed by remaining descending values to the end of the 24 hours. This somewhat departs from suggestions in the Manual to place the peak 2 hour values first. We feel it is more realistic to have more rain in front of the peak to reflect wet ground conditions often experienced in floods.

SOUTH BOULL . CREEK POINT RAINFALL

100 YR EVENTS

	ZONE 1 <6000 FT	ZONE 2 6000-8000		ZONE 3 8000-10,000 FT	ZONE 4 >10,000 FT	TOTAL BASIN	
		BEL GROS	AB GROSS				
	TEA	TEA	TEA	TEA	TEA	TEA	
ACRES	11456.00	15552.00	3392.00	43328.00	13248.00	86976.00	
SQ MI	17.90	24.30	5.30	67.70	20.70	135.90	
5 MIN DUR RAIN (IN)	0.783	0.708	0.708	0.621	0.534	0.648	
30 MIN DUR RAIN	2.133	1.928	1.928	1.691	1.454	1.764	
1 HR DUR RAIN	2.700	2.440	2.440	2.140	1.840	2.233	
2 HR DUR RAIN	3.120	2.820	2.820	2.470	2.127	2.580	
6 HR DUR RAIN	3.800	3.200	3.200	3.000	2.600	3.088	
24 HR DUR RAIN	5.000	4.600	4.600	4.400	3.600	4.401	AVG RAINFALL
							TEA
5 MIN DUR VOL (ACFT)	748	917	200	2241	589	4694	0.648
30 MIN DUR VOL	2036	2498	545	6104	1605	12788	1.764
1 HR DUR VOL	2578	3162	690	7727	2031	16188	2.233
2 HR DUR VOL	2979	3655	797	8918	2348	18697	2.580
6 HR DUR VOL	3628	4147	905	10832	2870	22382	3.088
24 HR DUR VOL	4773	5962	1300	15887	3974	31897	4.401

SOUTH BOULDER CREEK ADJUSTED RAINFALL

100 YR EVENTS
AREA REDUCTION FACTOR BELOW GROSS = 0.95 AREA REDUCTION FACTOR ABOVE GROSS = 0.927

	ZONE 1 <6000 FT		ZONE 2 6000-8000					ZONE 3 8000-10,000 FT		ZONE 4 >10,000 FT		TOTAL BASIN			
					?6000-7000	?7000-8000									
			BEL GROS	AB GROSS	BEL GROS	AB GROSS	WEIGHTED								
	TEA	CORP	TEA	TEA	CORP	CORP	CORP	TEA	CORP	TEA	CORP	TEA	CORP		
ACRES	11456.00	8320.00	15552.00	3392.00	7154.00	13321.00	20475.00	43328.00	40885.00	13248.00	15227.00	86976.00	84907.00		
SQ MI	17.90	13.00	24.30	5.30	11.18	20.81	31.99	67.70	63.88	20.70	24.00	135.90	132.88		
% AREA TEA	13.17%		17.88%	3.90%				49.82%		15.23%					
% AREA CORP		9.80%			8.43%	15.69%			48.15%		17.93%				
5 MIN DUR RAIN (IN)	0.744		0.672	0.656				0.575		0.495		0.606			
30 MIN DUR RAIN	2.026	1.385	1.831	1.767	1.315	1.160	1.214	1.567	1.115	1.347	1.010	1.650	1.147		
1 HR DUR RAIN	2.565	1.730	2.318	2.262	1.645	1.450	1.518	1.984	1.395	1.706	1.260	2.089	1.433		
2 HR DUR RAIN	2.964	2.385	2.679	2.614	2.270	2.000	2.095	2.290	1.925	1.972	1.735	2.412	1.977		
6 HR DUR RAIN	3.610	3.470	3.040	2.966	3.285	2.900	3.035	2.781	2.785	2.410	2.285	2.887	2.823		
24 HR DUR RAIN	4.750		4.370	4.264				4.079		3.337		4.114		AVG RAINFALL	
														TEA	CORP
5 MIN DUR VOL (ACFT)	710		871	185				2077		548		4390		0.606	
30 MIN DUR VOL	1934	960	2373	505	784	1288	2072	5659	3799	1488	1282	11959	8113	1.650	1.147
1 HR DUR VOL	2449	1199	3004	639	981	1610	2591	7163	4753	1683	1599	15138	10142	2.089	1.433
2 HR DUR VOL	2830	1654	3472	739	1353	2220	3574	8267	6559	2177	2202	17485	13988	2.412	1.977
6 HR DUR VOL	3446	2406	3940	839	1958	3219	5718	10041	9489	2661	2699	20927	19971	2.887	2.823
24 HR DUR VOL	4535		5664	1205				14727		3684		29615		4.114	
% VOL TEA	15.21%		19.00%	4.04%				49.40%		12.36%					
%VOL CORP		12.05%			9.80%	16.12%			47.51%		14.52%				

AREA REDUCTION FACTORS AND MISC DATA STILL TO BE CHECKED
EXACT CORP ELEVATION BOUNDARIES UNKNOWN

TAGGART

DRAFT
SUBJECT TO CHANGE UPON CHECKING AND REVISIONS
TEA AND CORP ELEV BREAKDOWN ROUGH

07/22/99

EMAIL → LESLIE. JULIAN @ NOAA.GO

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Mr. Gird,

Below is our initial rainfall approach for a hydrologic study for the South Boulder Creek watershed. The previous hydrology was accomplished by the U. S. Army Corps of Engineers. Within the following memo, please find our rationale, questions, and concerns. Highlighted sections are used to note that we are specifically looking for feedback.

This memorandum provides proposed rainfall volume data to be used in the Hydrologic Analysis of South Boulder Creek. The existing U. S. Army Corps of Engineers (USACE) hydrology (1986) used only the 6 hour duration NOAA rainfall, which was distributed by their own methodology rather than preserving the other NOAA statistics for peak 5 minute to 3 hour values. Thus their methodology does not agree with the District or Boulder Criteria, or NOAA as we understand it. Our previous investigation indicated that rainfall was underestimated. Thus, rainfall data used in the existing USACE hydrology is presented for comparison. The following numbers should be taken as a draft as we haven't worked on correcting the basin areas, double checked all the numbers, and are reviewing the literature regarding the proper use of area reduction factors and storm rainfall distributions.

PROPOSED RAINFALL

The South Boulder Creek hydrologic analysis will be based on existing NOAA rainfall information. **For areas within the Urban Drainage and Flood Control District, the analysis will be based on the Urban Storm Drainage Criterial Manual and Boulder Manual rainfall information with adjustments for the larger watershed. Basically a 24 hour duration storm with the 2 hour Boulder storm imbedded in the event and other NOAA statistics for intermediate durations will be preserved (e.g. 6hr, 3hr). Rainfall will be bracketed by rough elevation ranges following the four Boulder County elevation zones to reflect the large altitude range of the watershed. Point rainfall will be taken from the NOAA atlas at the centroid of each of the four zones.** Custom data for the highest zone IV will be used rather than using zone III data for zone IV per the Boulder Manual. (See attached DXF file for basin map).

We are still considering the use of a total 6 hour event versus a total 24 hour event. Based on previous USACE modeling, the time from the beginning of peak rainfall to peak runoff at Boulder Creek is 2.5 hours, though we suspect a longer lag of 3 to 3.5 hours with better stream routing. The flow from above Gross is delayed about 4 hours. The peak flow into Gross lags peak rainfall about 3 hours, with about 5.25 hours of lag immediately below Gross. Thus, a 6 hour duration event may not truly reflect runoff response at the mouth from the most distant parts of the basin. A 6 hour duration event would presumably use a larger area reduction factor, and thus reduce the model rainfall. A larger 24 hour duration event would have both greater total rainfall and a smaller area reduction factor (ARF). It would have more volume, but we doubt any significant difference in peak flows in the lower study area.

We are concerned with flooding in Boulder from the perspective of peak flows and volume. Peak flows are dominated by the area (40 square miles) and rainfall below Gross reservoir, which is located approximately 18 miles upstream of the mouth of South Boulder Creek in Boulder. Since some of the solutions to potential flooding in Boulder might involve storage, we are also concerned with runoff volume from the entire watershed. Therefore, our approach to "design rainfall" includes using appropriate rainfalls by elevation zones and location above or below Gross.

Rainfall above Gross Reservoir will be adjusted by NOAA area reduction factors (ARF) based on the entire watershed area. Rainfall below Gross will be adjusted based on the area downstream of the reservoir.

Conventional approach would apply the 24 hr duration area reduction factors to all increments within the design event. We are researching TP 29 to confirm this approach, but wonder if we should be using different area reduction factors for the various durations within the storm, (e.g. use the 1 hr duration area reduction factor curve for the peak rainfall between 1 hr and 2 hr durations, or using another approach.) Table 1 compares two options we see for use of the ARF's with the factors and rainfall used by the Corps.

USACE RAINFALL

The rainfall values used in the USACE study were obtained from the NOAA Precipitation-Frequency Atlas of the Western United States, Atlas 2, Volume III, Colorado. Adjustments for depth-area were based on NOAA depth-area relationships. Adjustments for the length of record were made using Beard's table of expected probability adjustments for various lengths. Spatial variation was accounted for by the use of several hyetographs. USACE reported that the time variation of the 6 hour rainfall for each hyetograph was based on a study of hourly precipitation data recorded for the South Platte River basin. They presented a ratio table but no documentation. One-half hour intervals were used to distribute the rainfall.

TABLE 1

	USACE	TEA ALT 1 (IF ADJUST ALL DURATION BY CONTRAST ARF)	TEA ALT 2 (IF ADJUST GIVEN DURATION BY ARF FOR THAT DURATION)
ZONE 1 100 YR RAINFALL PER NOAA AND BOULDER CRITERIA (IN)	2.70 1HR 3.80 6HR	2.70 1HR 3.80 6HR	2.70 1HR 3.80 6HR
ADJUSTMENT FACTOR FOR THE 1 HR RAINFALL	.64 (ADJUSTMENT FACTOR FOR THE PEAK 1 HR DURATION BASED ON DEPTH-AREA REDUCTION AND EXPECTED PROBABILITY ADJUSTMENT)	.95 (ADJUSTMENT FACTOR BASED ON 24 HR DEPTH-AREA CURVE)	.82 (ADJUSTMENT FACTOR BASED ON 1 HR DEPTH-AREA CURVE)
ADJUSTMENT FACTOR FACTOR FOR THE 6 HR RAINFALL	.913 (ADJUSTMENT FACTOR FOR THE PEAK 6 HR DURATION BASED ON DEPTH-AREA REDUCTION AND EXPECTED PROBABILITY ADJUSTMENT)	.95 (ADJUSTMENT FACTOR BASED ON 24 HR DEPTH-AREA CURVE)	.935 (ADJUSTMENT FACTOR BASED ON 6 HR DEPTH-AREA CURVE)
ZONE 1 CORRECTED RAINFALL (IN)	1.73 1HR 3.47 6HR	2.57 1HR 3.61 6HR	2.21 1HR 3.55 6HR

The USACE rainfall values would be closer to rainfall values obtained by applying varying area reduction factors for critical duration to incremental rainfall (TEA ALT2), e.g. using the 1 hr duration area reduction factor curve for the peak rainfall between 1 hr and 2 hr durations. Again we are researching the proper way to apply the Area Reduction Factor, and are interested in your advise.

TEA COMPARISON TABLE

The following table presents our first draft of rough rainfall volume in terms of inches and Acre-Feet for the suggested methodology and the previous USACE work. (See attached spreadsheet)

RAINFALL DISTRIBUTION

Our basic intent is to place the peak rainfall 2 hour duration storm in the Manual at time 6 hours (25% of the total duration) with alternating lesser values about this peak, until hour 12, which will be followed by remaining descending values to the end of the 24 hours. This somewhat departs from suggestions in the Manual to place the peak 2 hour values at the start of the design storm with the peak increment at 30 minutes. We understand the Manual distribution was determined from an analysis of the Stapleton Gage. We feel it is more realistic in terms of the size (140 square miles) and setting (mountains, foothills to plains transition) to have more rain in front of the peak to reflect wet ground conditions often experienced in floods.

QUESTIONS CONCERNING THE "DESIGN STORM"

For the following questions, please feel free to comment and make alternative suggestions as you see fit. Please recognize the that we are under a constrained budget.

1) Do you agree with using 4 elevation zones as identified by Boulder County and picking point rainfall values from the centroid of each zone from the NOAA Atlas?

2) Do you agree with adjusting point rainfall for each zone by either the "above Gross area reduction factor" (represents entire watershed) or by the "below Gross area reduction factor" (represents basin area below Gross)?

3) Do you agree with the approach of using one 24 hr "design" event over the entire watershed, made up of rainfall for various elevation zones with all internal smaller durations, and area reduction factors as discussed?

4) Do you agree with using a 2 hour storm imbedded in a 24 hour storm to account for peak flow and flood volume? The NOAA rainfall values for various durations would be imbedded also .

5) Do you agree with placing the 2 hour storm peak at 6 hours (25% of the total duration) to allow for rainfall to wet the ground and decrease infiltration and allow more of the watershed to contribute to the peak, thus making a more conservative scenario?

6) Do you agree with applying the 24 hour area reduction factor curves for above and below gross to rainfall values for the various durations within the 24 hour event (TEA ALT1)? Or should we be adjusting various durations within the storm with different factors (TEA ALT2).

7) Do you agree with distributing alternating lesser values about the 2 hour storm peak, until hour 12, which will be followed by remaining descending values to the end of the 24 hours?

Thanks for your assistance,
V/R Walt Hime
Bill Taggart

SOUTH BOUL . CREEK POINT RAINFALL

100 YR EVENTS

		ZONE 1 <6000 FT	ZONE 2 6000-8000		ZONE 3 8000-10,000 FT	ZONE 4 >10,000 FT	TOTAL BASIN	
			BEL GROS	AB GROSS				
		TEA	TEA	TEA	TEA	TEA	TEA	
ACRES		11456.00	15552.00	3392.00	43328.00	13248.00	86976.00	
SQ MI		17.90	24.30	5.30	67.70	20.70	135.90	
5 MIN DUR RAIN	(IN)	0.763	0.708	0.708	0.621	0.534	0.648	
30 MIN DUR RAIN		2.133	1.928	1.928	1.691	1.454	1.764	
1 HR DUR RAIN		2.700	2.440	2.440	2.140	1.840	2.233	
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								TEA
5 MIN DUR VOL	(ACFT)	748	917	200	2241	589	4694	0.648
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2 HR DUR VOL		2979	3655	797	8918	2348	18697	2.580
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24 HR DUR VOL		4773	5962	1300	15887	3974	31897	4.401

SOUTH BOULDER CREEK ADJUSTED RAINFALL

100 YR EVENTS
AREA REDUCTION FACTOR BELOW GROSS = 0.95

AREA REDUCTION FACTOR ABOVE GROSS = 0.927

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						?6000-7000	?7000-8000									
				BEL GROS	AB GROSS	BEL GROS	AB GROSS	WEIGHTED								
		TEA	CORP	TEA	TEA	CORP	CORP	CORP	TEA	CORP	TEA	CORP	TEA	CORP		
ACRES		11456.00	8320.00	15552.00	3392.00	7154.00	13321.00	20475.00	43328.00	40685.00	13248.00	15227.00	86976.00	84907.00		
SQ MI		17.90	13.00	24.30	5.30	11.18	20.81	31.99	67.70	63.68	20.70	24.00	135.90	132.68		
% AREA TEA		13.17%		17.88%	3.90%				49.82%		15.23%					
% AREA CORP			9.80%			8.43%	15.69%			48.15%		17.93%				
5 MIN DUR RAIN	(IN)	0.744		0.672	0.656				0.575		0.495		0.606			
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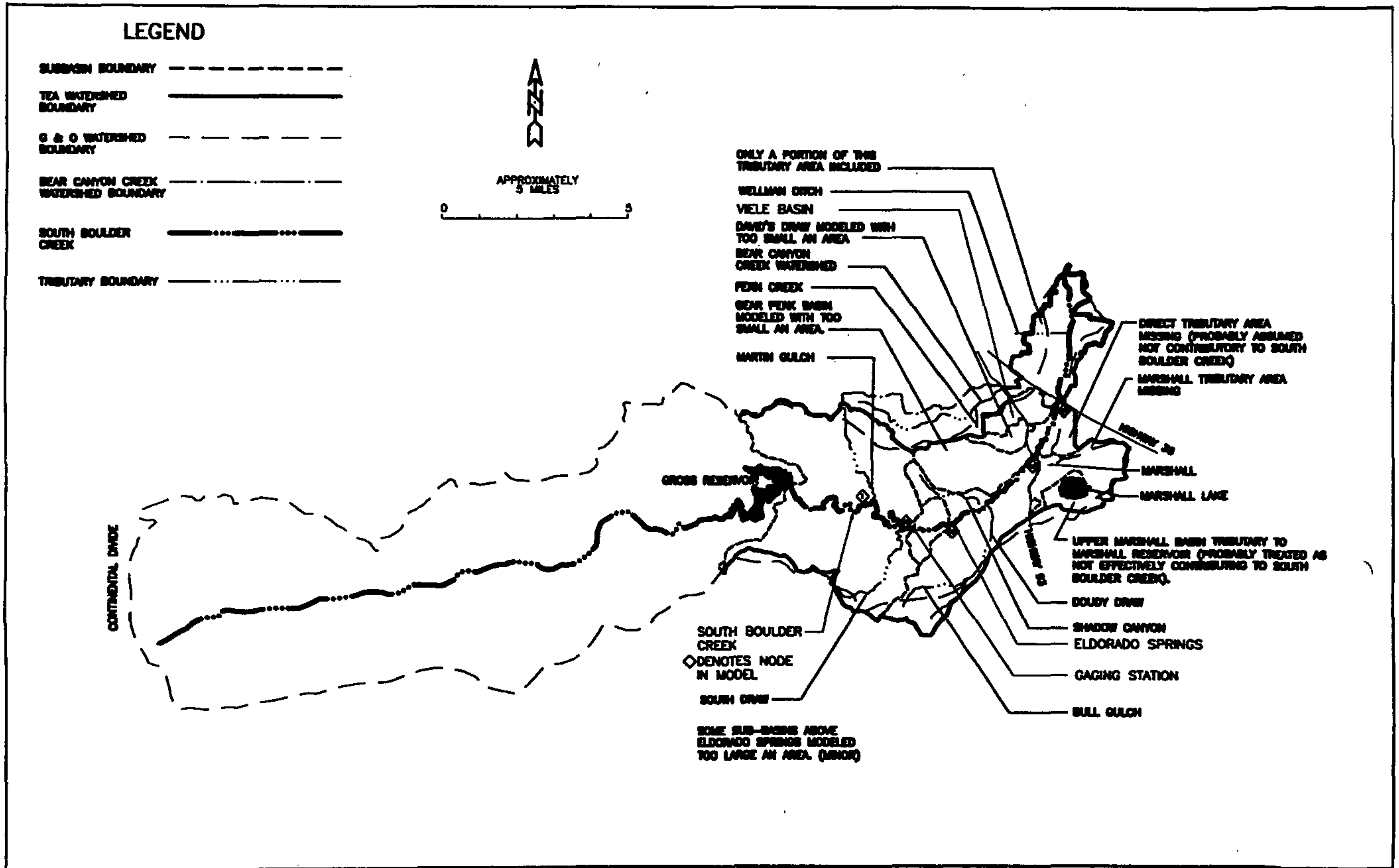
2 HR DUR RAIN		2.964	2.385	2.679	2.614	2.270	2.000	2.095	2.290	1.925	1.972	1.735	2.412	1.977		
6 HR DUR RAIN		3.610	3.470	3.040	2.966	3.285	2.900	3.035	2.781	2.765	2.410	2.285	2.887	2.823		
24 HR DUR RAIN		4.750		4.370	4.264				4.079		3.337		4.114		AVG RAINFALL	
															TEA	CORP
5 MIN DUR VOL	(ACFT)	710		671	185				2077		546		4390		0.606	
30 MIN DUR VOL		1934	960	2373	505	784	1288	2072	5659	3799	1488	1282	11959	8113	1.650	1.147
1 HR DUR VOL		2449	1199	3004	639	981	1610	2591	7163	4753	1883	1599	15138	10142	2.089	1.433
2 HR DUR VOL		2830	1654	3472	739	1353	2220	3574	8267	6559	2177	2202	17485	13968	2.412	1.977
6 HR DUR VOL		3446	2406	3940	839	1958	3219	5718	10041	9489	2661	2699	20927	19971	2.887	2.823
24 HR DUR VOL		4535		5684	1205				14727		3684		29615		4.114	
% VOL TEA		15.21%		19.00%	4.04%				49.40%		12.36%					
%VOL CORP			12.05%			9.80%	16.12%			47.51%		14.52%				

AREA REDUCTION FACTORS AND MISC DATA STILL TO BE CHECKED
EXACT CORP ELEVATION BOUNDARIES UNKNOWN

TAGGART

DRAFT
SUBJECT TO CHANGE UPON CHECKING AND REVISIONS
TEA AND CORP ELEV BREAKDOWN ROUGH

07/22/99



TAGGART	URBAN DRAINAGE AND FLOOD CONTROL DISTRICT	INITIAL RECONNAISANCE OF DRAINAGE NETWORK AND SOUTH BOULDER CREEK'S HYDROLOGY, HIGHWAY 36 TO APPROXIMATELY THE WELLMAN CANAL, PHASE II	SOUTH BOULDER CREEK BASIN AREAS	3/18/97	FIGURE III-1

TAGGART
ENGINEERING ASSOCIATES, INC.
2480 West 26th Avenue • Suite 340-B • Denver, Colorado 80211 • (303) 455-3600 • FAX (303) 455-9929

September 9, 1999

Dr. Danny L. Fread
Director
Office of Hydrology
U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
1325 East-West Highway
Silver Spring, MD 20901-3283

RE: Your response of September 3, 1999 regarding South Boulder Creek Hydrology

Dear Dr. Fread:

We were disappointed in your letter, especially after we had e-mailed the request at the beginning of August, 1999 and had been told that the right person would be identified and would be able to respond. We are working for the Urban Drainage and Flood Control District in sponsorship with the City of Boulder, Boulder County and the University of Colorado.

Fundamentally, we were asking questions about NOAA documents and points at which the application of NOAA/NWS data is unclear. We would appreciate answers to our questions, including:

1. TP29, Part 1 puts forward two curves for area reduction factors for the 1 and 24 hour durations. Later Parts 2-4 indicated added curves for other durations, which are explained to be interpolated with no discussions as to how the interpolation was made. Questions:
    a. How were the interpolations made for the other durations?
    b. Is it still appropriate to use these curves, as indicated in your atlas for Colorado?
    c. In some cases engineers in this region use one area reduction factor over all values in the design storm. Thus if they think a 6 hour duration event is critical to the watershed response, then they use the one area reduction factor for all internal rainfall (e.g., the NOAA 1 hour rainfall is corrected by the 6 hour area reduction factor). What is the correct procedure?
    d. We intend to use a 24 hour duration design event so that we are

Hydrology • Hydraulics • Sediment Transport •
Civil Engineering for Flood Control, Waterways, Water Supply and Parks •
Environmental Mitigation • Forensic Services •

sure the entire watershed is responding. We also intend to make sure that the design event has internal "duration" (e.g. 30 min., 1 hr., 3 hr., 6 hr.) rainfall that corresponds to the NOAA Colorado Atlas. This would require application of varying area reduction factors that result in the correct amounts for each of the durations. Do you agree and/or do you have directions on the use of the NOAA atlases to deduce the design rainfall? Please be specific in your response.

2. What is the correct or best procedure to derive a "design" rainfall event (e.g. the temporal pattern) from the Colorado Atlas?
3. Do you believe the Colorado NOAA Atlas is the best source for rainfall design data? If not, what is?
4. What, if any, are NOAA's current actions and plans for revising or refining the Colorado Rainfall Atlas and preparation of design guidelines?
5. Since we don't have the raw data or the detailed analysis behind the preparation of the atlas, and NOAA does, and since much of the watershed is in the mountains, we are specifically asking you to indicate the reliability of the atlas in the mountains, and how we should apply the atlases. In our previous memo we discussed that much of the mountain area is tributary to Gross Reservoir, which even if full, has a substantial routing effect. Our thoughts were to use an area reduction factor below Gross that was based on that lower area (35 to 40 square miles), which would result in a small rainfall correction and thus larger peaks than if we used the area reduction factor for the entire watershed. For the area above Gross we were going to use the area reduction factor for the entire watershed (130-140 square miles). This seemed especially reasonable considering the altitude range. Again, we don't have NOAA's data or its analysis of the effects of altitude. Do you agree that our approach would result in a reasonable application of NOAA's Colorado Atlas? If not, what do you suggest?
6. The Corps of Engineers in 1977 used the NOAA atlas hour values, but state that they didn't use the 1 hour values based on their examination of Front Range events. This has created a significant issue that led to this restudy. Based on many rainfall events in the last years, and the level of work apparent in the NOAA atlas, it seems very likely that the Corps' "judgment" is incorrect and that NOAA's atlas values are more realistic. Perhaps NOAA's values are also low based on the Fort Collins 1997 event and recent Front Range rainfalls. We believe it is most reasonable to use the NOAA values, with due recognition that future restudies are likely to

increase rainfall. Do you agree or what would you suggest?

I would much appreciate your response, especially as these are questions regarding a key government document to which only NOAA has the data, analysis, and knowledge.

Sincerely,

TAGGART ENGINEERING ASSOCIATES, INC.

William C Taggart

William C. Taggart, P.E.

RECEIVED SEP 1 6 1999

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
1325 East-West Highway
Silver Spring, Maryland 20910-3283

SEP 0 3 1999

Mr. Bill Taggart
Taggart Engineering Associates, Inc.
2480 West 26th Avenue, Suite 340-B
Denver, Colorado 80211

Dear Mr. Taggart:

Thank you for the opportunity to review your memorandum and proposed rainfall analysis for the Hydrologic Analysis of South Boulder Creek. To answer the questions you have raised would require our doing work outside of the scope of what Congress has authorized for us. Our office acts as a neutral agency in establishing rainfall spatial and temporal distribution characteristics for design purposes. The application of this information is at the discretion of various other government and private organizations in hydrometeorological community.

Possible alternatives for review of your study might be meteorological consultants or the academic community. We regret that we are not in a position to assist you at this time.

Sincerely,

Danny L. Fread for
Director
Office of Hydrology

cc:
Walt Hime
Ron Gird

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL WEATHER SERVICE
1325 East-West Highway
Silver Spring, Maryland 20910-3283

SEP 29 1999

Mr. Walt Hime
Taggart Engineering Associates, Inc.
2480 West 26th Avenue, Suite 340B
Denver, Colorado 80211

Dear Mr. Hime:

The questions you asked are scientifically valuable and are subject to considerable professional judgment. The best available rainfall data and statistical analysis were used to generate the documents in question.

The National Weather Service (NWS), Office of Hydrology, Hydrometeorological Design Studies Center (HDSC), lead by Dr. Lesley Julian ((301) 713-1669 x109), has reviewed your most recent letter. The information enclosed addresses those questions falling within the responsibilities of the HDSC mission. I hope the information provided sufficiently addresses your concerns on these issues.

Sincerely,

Danny L. Fread

Danny L. Fread
Director
Office of Hydrology

Enclosure

Response to Taggart Letter Dated September 9, 1999

1. a. The interpolations for other durations (3 hours and 6 hours) were done using the 1- and 24-hour curves. The 30-minute curve is based on short-record data from Muskegum, Ohio [see TP 29, Part 1, Section II Applications, item 62, page 15].

   b. As you can tell from TP 29, Part 1 [Figure 1-5, page 10], the dense gauge networks from which the curves were developed, are all in the Midwest or East. Subsequent evaluations found little or no regional variation. These curves are applicable in Colorado, using appropriate professional judgment. However, for short durations, usually convective storms, you may want to look at *NOAA Technical Memorandum NWS Hydro 40*, **Depth-Area Ratios in the Semi-Arid Southwest United States** (Zehr & Myers 1984).

   c. This seems a reasonable approach, based on local knowledge and professional judgment.

   d. Your approach seems reasonable.

2. For a "design" rainfall event, the temporal distribution is not addressed in NOAA Atlas 2; but is covered in *NOAA Technical Report NWS 27*, **Interduration Precipitation Relations for Storms - Western United States** (Frederick et al 1981). In addition, you can consider the rainfall timing effects on the basin for your area. You can test the effects of front, middle, and end loading for the response of the stream/basin, and decide which is most critical to your purpose.

3. NOAA Atlas 2 - Colorado is the best source at present. NWS is in the process of updating Technical Paper 40 (precipitation frequencies for the Midwest and Eastern U.S.) and NOAA Atlas 2 for the Western U.S. However, Colorado will not be completed for 2 to 3 years.

4. See 3.

5. For dividing up a basin into sub-basins, see the *Flood Hydrology Manual*, U.S. Department of the Interior, Bureau of Reclamation (1992) pages 59-61. It is important to remember that storm volume depends on the entire basin. The sum of the sub-basin volumes cannot exceed the total basin volume. At the risk of being obvious, the procedure is to compute the total (T) basin (South Boulder Creek Basin) volume (Volume$_T$ = Area$_T$ x Depth$_T$); then compute the volume of the sub-basin (e.g., below Gross Reservoir) of interest in the same way. To find the volume of the other sub-basin (all but "below Gross Reservoir"), subtract the sub-basin volume of "below Gross Reservoir" from Total basin volume.

6. We agree that it is reasonable to use the NOAA Atlas 2 values at this time.

HENZ METEOROLOGICAL SERVICES
1401 West Dry Creek Road
Littleton, Colorado 80120
303.458.1464

Dear Mr. DeGroot:

Per your request I have reviewed and evaluated the attached letter sent by Walt Hime and Bill Taggart of Taggart Engineering Associates on their initial approaches to rainfall for a hydrologic study for South Boulder Creek. I discussed my findings with you at a meeting on August 26, 1999. This letter provides a summary of our discussion points and my evaluation.

Basic Premise of Taggart Approach appears valid

First, the "Taggart" approach is a reasonable attempt to improve on the previous approach utilized by the U. S. Army Corps of Engineers in their Hydrologic Analysis of South Boulder Creek (COE approach). The Taggart approach does not propose radical departures from the prior study. Rather, it proposes reasonable scientific adjustments that are sensitive to the unique meteorological and hydrological characteristics of South Boulder Creek. However, Henz Meteorological Services would like to make the following observations on the techniques proposed, provide several reasonable adjustments to the Taggart approach and address each of the questions posed at the end of their letter.

General observations relative to either the COE or Taggart approaches

NOAA Atlas II is old, needs revision and relies on a database that consists of station records that are less than 25 years in duration for over 68 percent of the records.

The primary observation is that the approach relies on the validity of the 100-year 1-hr, 3-hr, 6-hr, 12-hr and 24-hr rain events as described for Boulder County and the South Boulder Creek basin in NOAA Atlas II, Precipitation-Frequency Atlas of the Western United States. This atlas was published in 1973 and the Colorado analyses are based on the records of 346 rain gauges in the state. Of these gauges only 109 gauges or 31.5 percent had a period of record greater than 25 years. Another 25 years plus of rainfall events have occurred since the publication of NOAA Atlas II and it is in dire need of updating. Several Western states have already had their sections of the precipitation-frequency atlas updated with many surprising results. A weakness of any study accomplished on South Boulder Creek will be the short duration of the database it relies on and the asymmetric rainfall distributions, which have occurred since 1973.

<u>The meteorology of the basin supports the inclusion of thunderstorms as the primary source of rainfalls of six-hour or less duration.</u>

My experiences with rainfall events in the Boulder basin as the primary meteorological service for the Urban Drainage & Flood Control's Flash Flood Prediction Program spans 21 years from 1979 to present. I have been an operational meteorologist along the Front Range since 1968 and become a published expert on both Colorado precipitation and Front Range thunderstorm and precipitation events. I would like to emphasize that most intense 6-hour rainfall events are associated with multi-cell thunderstorm systems that become stationary or move very slowly either up or down the basin. A multi-cell thunderstorm will create two rainfall peaks during a 2-3 hour period.

<u>Most heavy thunderstorm events occur on Day Two or Day Three of a four to six day period of monsoon generated storminess.</u>

In my experience over 80 percent of the thunderstorm rainfall events occurring from June to August are preceded by 24 to 48 hours of either thunderstorms or general rainfall. These conditions frequently make for nearly saturated soil conditions in foothills basins prior to a major event. Two notable exceptions to this observation are the Big Thompson Flash Flood of 1976 and the Frijole Creek Flash Flood of 1981 which were singular precipitation events following a near-drought period.

Additionally, very efficient general upslope rainfall with no thunderstorms could produce a six-hour or less flooding event if the conditions were proper. Steady rain rates of 0.50" to 0.75" per hour could be sustained for periods of 6 hours or more. Fortunately, while the storm total rainfall would be similar to a thunderstorm event, the temporal distribution of the upslope rainfall would be more evenly distributed than that observed with a thunderstorm event.

Suggested improvements to the proposed Taggart approach

HMS suggests that three improvements be considered to the Taggert approach related to the temporal distribution, aerial distribution and antecedent moisture conditions of the rainfall event. The temporal and aerial distribution improvements are based on two recent near-100 year precipitation events observed in the South Boulder Creek basin during 1998 and 1999. The improvements are based on using the observed temporal, aerial and intensity distributions of these two rain events to provide guidance on the distributions.

The antecedent moisture improvement is related to a study accomplished by George Sabol and John Henz for the District that provided guidance to assist in the prediction of flash floods in the District foothills. One aspect of the study dealt with the effects of saturated soils on runoff in the basins.

__Temporal distribution of 100-year rainfall event could be modeled on two recent storm events observed in South Boulder Creek's basin.__

The Taggart approach has advocated using either a 2-hour event embedded in a 6-hour or 24-hour event or the standard NOAA 3-hour, 6-hour and 12-hour distributions in a 24-hour event. First, HMS advocates the use of a 24-hour rain event with a 100-year 6-hour event embedded in the second twelve hours of the 24-hour event. The 24-hour event that begins at 9PM on Day 1 and ends at 9PM on Day 2. The 24-hour period chosen allows two periods of convective rainfall over the basins in a manner similar to the recent Fort Collins Flash Flood of July 27, 1997.

A general overnight rain of 1.00"-1.50" is distributed over the entire basin from 9PM, Day 1 to 9AM, Day 2. No rain will fall from 9AM to 3PM on Day 2. A six-hour 100-year event will be distributed from 3PM-9PM on Day 2. These suggestions are very similar to the existing Taggart approach and could be easily, really accommodated. **Please note that the 100-year, 1-hour event is 2.70" while the 100-year, 6hour event is 3.80".** The observed rainfall from the two storms cited in this section closely approximate these 100-year values.

The temporal distribution of the key 6-hour event could be modeled on the observed rainfall from two key events:

A westward-moving evening thunderstorm observed in South Boulder Creek's basin on July 8, 1998 provides the temporal distribution for the most intense portion of the embedded 6-hour thunderstorm event. This storm produced a District measured 2.76"/45 min rainfall and a radar estimated 4.5"-5.5"/3 hours. The peak rainfall was observed in the lower portions of South Boulder Creek below Goss reservoir. It covered an estimated 25 square miles of the lower basin with the heavy rain and moved over the upper basin before dissipating. **The observed 2.76"/45minutes exceeds the 100-year, 1-hour intensity and would provide a good temporal model for the most intense hour of rainfall.**

A general rain event with embedded thunderstorms was observed on August 4, 1999 in South Boulder Creek's basin which dropped a lower basin average of 3.07"/6 hours and an upper basin average of 2.36" of rain. This event could provide valuable information on the temporal distribution of rainfall in the lower versus the upper portions of the basin. If this distribution were used in concert with the most intense 1-hour values from the July 8, 1998 storm, a realistic temporal distribution could be obtained for use in the Taggart approach.

While the observed 6-hour rain totals of 3.07" are only about 80percent of the 3.80"/6-hour values recommended, they could provide the realistic temporal guidance and resolution for the temporal rain distribution.

Aerial distribution of 100-year rainfall event could also be modeled on two recent storm events observed in South Boulder Creek's basin.

The Taggart approach also expressed concern about the aerial distribution of event rainfall in lower basin versus the upper basin and for four elevation zones. The general rain event with embedded thunderstorms offers a good model for the aerial rainfall distribution.

An example of a recent rain event which approximates a 6-hour event which is 80 percent of a 100-year, 6-hour event can be found on August 4,1999. Table 1 shows the observed rainfall in the South Boulder Creek Flood Detection Network. This event suggests that the rainfall in the lower portion of the basin below Gross Reservoir was 30 percent more than the observed rain fall in the upper basin above Gross reservoir.

Table 1 Rainfall observed in South Boulder Creek on August 4, 1999.

GAUGE NUMBER	RAINFALL 15L - 21L
Upper Basin Gauges	
# 1 4090 H	3.19"
# 2 4100 I	2.24"
4110 J	2.01"
4730 K	2.09"
4360 L	2.28"
Upper Basin Average Rainfall =	2.36"
Lower Basin Gauges	
4010	3.07"
4020	2.68"
→ 4030	3.15"
4040	3.19"
4050	2.95"
4060	3.39"
Lower Basin Average Rainfall =	3.07"

HMS has predicted and then verified rainfall for its quantitative precipitation forecasts for over 10 years. The use of the August 4, 1999 storm to quantify both the aerial and temporal distribution of rainfall during a 100-year, 6-hour event is highly encouraged. It is suggested that the observed values be partitioned according to the four Taggart approach zones and used as identified above.

Antecedent moisture impacts on storm runoff due to saturated soil conditions could be based on the Sabol-Henz approach used to provide foothills flood guidance values to the District's Flash Flood Prediction Program.

HMS does not provide hydrologic consulting services, however, it wishes to remind the District of a foothills flood guidance tool prepared by Dr. George Sabol in cooperation with John Henz in 1992. This tool measures the escalating impact of the maximum average 1-hour, 10 square mile rainfall falling on four soil conditions ranging from very dry to saturated on the noted return frequency of the anticipated flooding. Figure 1 shows Figure III-1 of the Sabol and Henz report.

Please note that a 2.00" 1-hour rain on 10 square miles area would produce a 10-year flood if it fell on dry soil and a 100-year flood if it fell on saturated soil.

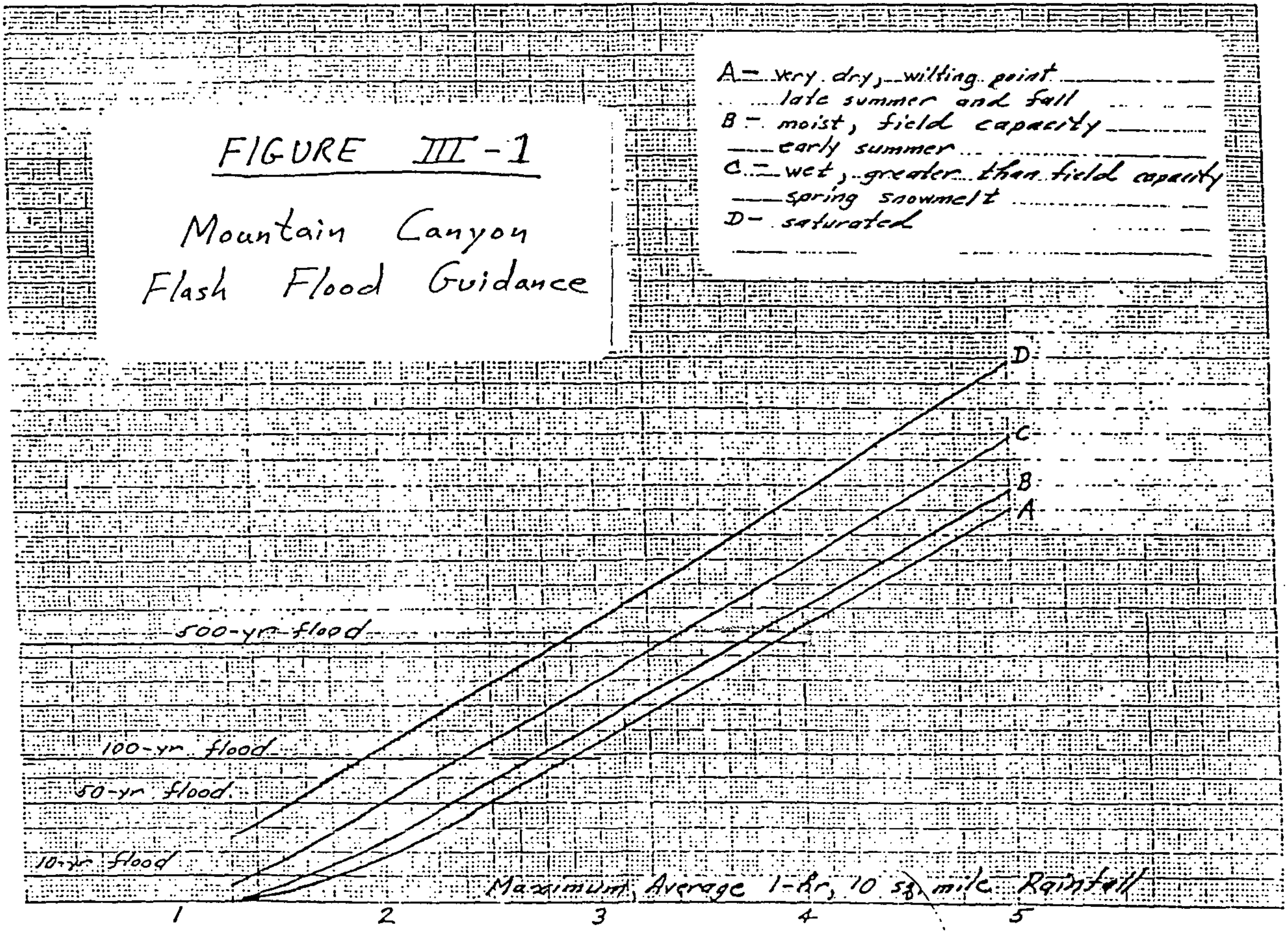
Finally, HMS recommends that the suggestions presented above be given serious consideration for inclusion into the Taggart approach for rainfall in South Boulder Creek basins study.

Sincerely yours,

John F. Henz
Certified Consulting Meteorologist #270

FIGURE III-1

Mountain Canyon Flash Flood Guidance



Love & Associates, Inc.
water resource consultants
841 Front Street
Louisville, Colorado 80027-1849
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E mail: loveassociates@tesser.com

July 12, 2000

Mr. Jeff Lipton
Director
Department of Facilities Management
University of Colorado at Boulder
Campus Box 53
Boulder, Colorado 80309-0053

REF: 2001B – South Boulder Creek Hydrology

Dear Jeff:

Bill Taggart has provided us additional explanations and documentation on stream flow modeling parameters utilized in his hydrology study of South Boulder Creek. We understand that he modified a few of these parameters in his current hydrologic model.

We concur with Taggart Engineering Associates (TEA) work and support their modeling efforts. We still believe that this hydrology shows 100-year discharges that are higher than what we would actually see in the creek during the 100-year event, since floodplain storage (dynamic stream flow routing) is not taken into account. This is beyond Taggart's current contract, however, a significant amount of storage occurs in the floodplain below the canyon mouth. Taking floodplain storage into account would decrease the size of the floodplain and the volume of storage required for the master plan alternates.

We would not have a problem with utilizing the TEA hydrology as currently drafted so long as the Project Sponsors recognize that it is conservative and that master planning efforts take this into account.

Sincerely,

LOVE & ASSOCIATES, INC.

By David J Love
David J. Love, PE

SECTION VIII

ELDORADO GAGE AND GROSS RESERVOIR INFORMATION

MEMORANDUM

TO: Bill DeGroot, P.E.
Urban Drainage and Flood Control District

FROM: Bill Taggart, P.E.
Walt Hime, P.E.

DATE: August 12, 1999

RE: South Boulder Creek - Eldorado Springs Stream Gage and Gross Reservoir Initial Data

This memorandum provides information concerning two subjects (Eldorado Springs stream gage and Gross reservoir) that are significant regarding the Hydrologic Analysis of South Boulder Creek. The purpose for obtaining Eldorado Springs stream gage data is for simulating the 1969 flood for model calibration and possible statistical analysis. Review of the 1969 data indicates that the gage may not be reliable for high flow measurements. TEA is investigating how Colorado Division of Water Resources calculated flow rates during the May flood of 1969.

The current modeling approach is to assume Gross Reservoir full. However, review of Gross Reservoir data indicates that significant storage typically exists. During the month of June, when the reservoir is typically is at its fullest, an average of 7.7 % (3,219 Acre Feet) of the reservoir volume is still available for storage, not including surcharge. Thus, rainfall-runoff modeling above Gross may be overestimated if the reservoir is assumed full.

ELDORADO STREAM GAGE

The subject gage is a water-stage recorder in a metal box shelter and corrugated well. The gage is located 6.7 miles downstream of Gross Reservoir and 1.8 miles downstream of the South Boulder Canal Diversion which supplies water to Denver. The gage measures water that bypasses this diversion. Thus, the intent of the gage is to monitor water rights (per Mr. Bob Cooper at the Colorado Division of Water Resources). The control is a boulder sill downstream. The waterway is cobble and gravel lined upstream and downstream. High flows scour the channel, thus probably making accurate flood flow measurements unreliable. Review of gage height measurements and discharge recordings of South Boulder

Creek taken at the gage during the month of May 1969 raises many questions (see attachments). For example: the recorded daily average discharge for May 7 1969 was 1120 cfs with the max flow calculated to be 1690 cfs. However, the greatest flow recorded on the applicable rating curve (No. 19) is 542 cfs (see attached two example graphs). The first table is the Eldorado Springs gage height (and flow) daily summary for water year 68-69. Note the "S" for May 7, which indicates the flow is subdivided and which we believe is based on calculated flow not calibrated stream measurements. TEA plans to investigate how the May 7th flows were obtained and how the higher flows are determined. A new rating curve was used on May 8th indicating that the control changed. The 1969 calibration summary table specifically denoted the use of new rating table No. 19. Comparison of gage height and flows support the conclusion that the bed and control changed during the May 7, 1969 flood. Note that on September 9, 1969 there is a comment that the control changed 9-2-69. Similar notes are recorded on various dates. For example, the 1978 calibration summary table on 8-31-78 notes "Control washed down" and on 9-14-78 "Rocks missing in center of control."

We believe the highwater data for the Eldorado Gage and the basis of determining flood flows should be reviewed, however, the information used for general calibration / high mark comparison, but probably not as a rigid statistical basis test of the rainfall runoff modeling.

GROSS RESERVOIR

As previously discussed, Gross Reservoir is a water supply reservoir and not a flood control reservoir. Therefore, it is possible that the reservoir could be full at any time. Thus, the current modeling approach is to assume that the reservoir is full and that flood storage routing would be utilized above the spillway elevation. This is a conservative assumption for downstream flooding. The following sheets from Denver Water provide operating procedures for Gross and volume statistics for water years 1947-1991. The operating procedures came from the 1973 R.W. Beck study. Denver Water indicated that the same procedures are used today. The reservoir data indicates significant available volumes exist below the Gross spillway elevation. The statistics indicate that average storage available for months May thru August is 20% of the reservoir volume (8362 acre feet) with an average of 7.7% of the reservoir volume (3219 acre feet) available in June when the maximum volume of water is stored . The general operating plan is to store and regulate water imported through the Moffat Tunnel and native flows from South Boulder Creek. Prior to spring runoff, Denver Water historically draws down the reservoir level no lower than about 15,000 acre feet of storage. The reservoir is filled as fast as practicable in the spring. To avoid spilling at volumes greater than 41,811 acre-feet, West Slope input is reduces as the reservoir is about to fill.

Review of stage records of Gross Reservoir during the flood of 1969 indicate that the reservoir did not spill. The storage went from 27,015 acre-feet to 32,500 acre-feet from May 5 to May 10.

We believe that Gross Reservoir significantly effects flood statistics downstream. The reported peak flows at the Eldorado Springs gage, which may be somewhat low, confirm this situation. It may be worthwhile to investigate reservoir level and available storage statistics and use joint probability risk assessment to show more available storage. For example, we could model the 100 yr rainfall (1% probability) with the 10 yr available volume (10% probability) which should be conservative and more realistic. A dichotomy which exists is the call for the use of Eldorado Springs Gage flood statistics but the direction for rainfall runoff modeling to use the assumption of Gross Reservoir being full.

REQUEST FOR DIRECTION

Do you wish us to:

1.) Continue researching the Eldorado Springs Gage high flow data and its basis of determination (backwater calculation, high water marks and calibrations at other locations; documentation on gage control sill damage, repairs, and bed movement)?

2.) Obtain the strip recorder data and conduct verification of peak flows and statistical analysis? Or do you want us to do step 1 and report back? (Note that we have a 60 hour budget for analysis of the Eldorado gage data of which 8 hours is used. Also we have a budget of 60 hours for 1969 flood calibration of which 10 hours is used.)

3.) Conduct statistical analysis of the Available Storage below the spillway at Gross Reservoir and refine an approach to the use of this data? (Note that we have no contract requirement or budget to conduct such work.)

Gross Reservoir

Location:
On South Boulder Creek, 4 miles north of Wondervu, 35 road miles, (56 km) 26 airline miles northwest of Denver.

Route from Denver:
Colorado Highway 72, (Coal Creek Canyon) northwest to approximately 1 miles east of Wondervu, north on reservoir access roads.

Elevation:
Spillway crest - 7,285 feet, (2,220 m) above sea level.

Year completed:
1954

Type:
Gravity arch-concrete. Height - 340 feet, (103 m) above streambed.
Crest length - 1,050 feet, (320 m).

Facility value:
$16,937,184

Function:
Stores and regulated western slope water coming from the Moffat Tunnel through South Boulder Creek before it goes on to the South Boulder Creek diversion to Ralston Reservoir and the Moffat Treatment Plant.

Capacity:
43,065 acre feet, (53,000,000 m^3).

General:
The dam and reservoir are named for Dwight D. Gross, who served as a Chief Engineer of the Denver Water Department. Dedication was held August 2, 1955.
Some 627,559 cubic yards of concrete, representing 1,203 railroad carloads, were used in construction.

Recreation:
Shore fishing, picnic facilities available.

Hours:
4 A.M. to 9 P.M.

PLATTE RIVER BASIN

06729500 SOUTH BOULDER CREEK NEAR ELDORADO SPRINGS, CO

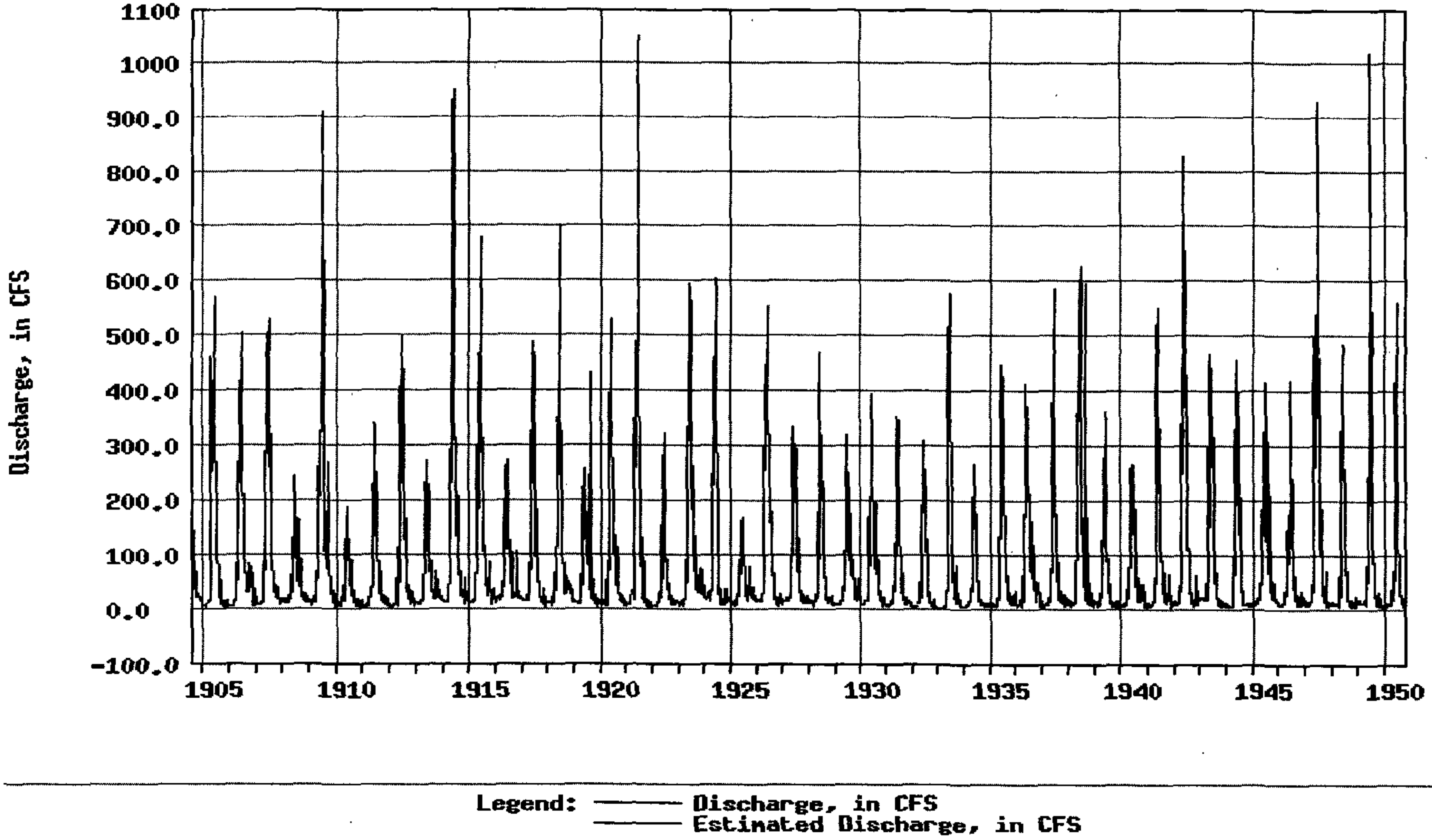
LOCATION.–Lat 39°55'52", long 105°17'43", in SE¼ sec. 26, T.1 S., R.71 W., Boulder County Hydrologic Unit 10190005, on left bank 0.2 mi downstream from South Draw, 1.0 mi west of Eldorado Springs, 1.8 mi downstream from South Boulder diversion canal, 5.0 mi south of Boulder, and 6.7 mi downstream from Gross Reservoir.

DRAINAGE AREA.–109 mi^2.

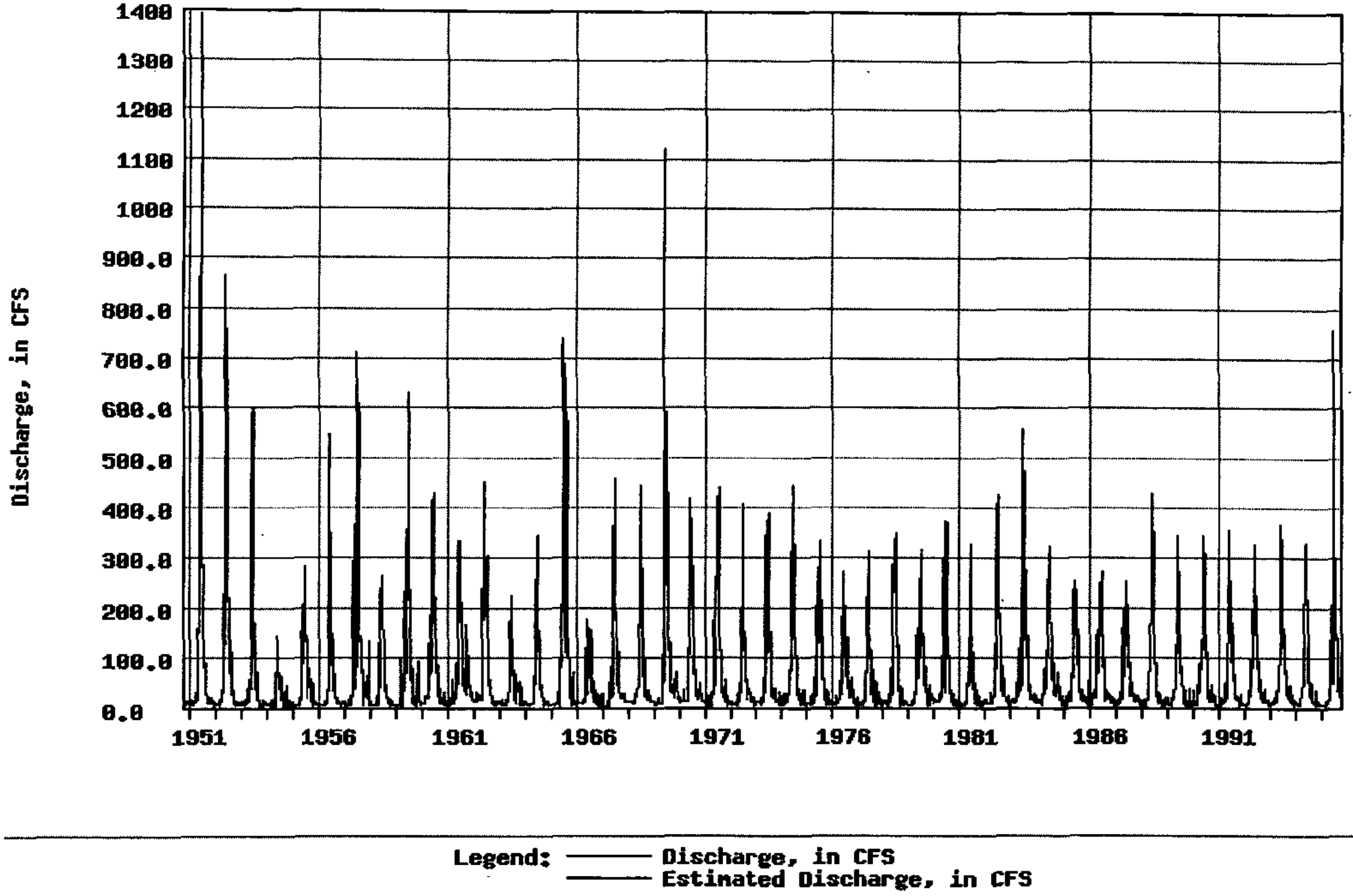
GAGE.–Water-state recorder with satellite telemetry and shaft encoder in metal box shelter with supplemental outside chain gage. DCP is the primary record with chart recorder as backup.

REMARKS.–Record is complete and reliable except for the following periods: Nov. 10-11; Dec. 18, 1998; Mar. 6-7, 13, 1999 when stage-discharge relationship ice affected; Dec. 19-28, 1998 when float frozen in well; Dec. 29, 1998-Mar. 4, 1999 when station closed for winter. Record good except for estimated days listed. Station maintained and record developed by G. T. Anderson.

South Boulder Creek Near Eldorado Springs, Co.
Station Number: 06729500



MEAN DAILY DISCHARGE



South Boulder Creek Near Eldorado Springs, Co.
Station Number: 06729500

MEAN DAILY DISCHARGE

SECTION IX

SUPPLEMENTAL DEFINITIONS

SOUTH BOULDER CREEK

HYDROLOGIC ANALYSIS and MAJOR DRAINAGEWAY PLANNING

BRIEF DEFINITIONS, BACKGROUND, AND STUDY SCOPE

August 26, 1999

I. <u>DEFINITIONS</u>

In the following, the bold word is defined followed by the tasks and topics often involved, and units. The tasks which are effectively under the contract scope to a significant degree are underlined.

- **METEOROLOGY - PREDICTION OF PRECIPITATION**

  Tasks and Topics Involved:
  Type, <u>extent</u>, <u>intensity</u>, <u>duration</u>, <u>time</u> [temporal], distribution [isohyets and isopluvial], and patterns [hyetograph], lifting effects [orographic and frontal], moisture sources and/or direction
  Units:
  - Inches, inches per hour, probability (1% chance or 100-year rainfall)

- **HYDROLOGY - PREDICTION OF RUNOFF FLOW AND VOLUME**

  Tasks and Topics Involved:
  Infiltration dependent on ground cover, soils, geology, and wet ground [antecedent moisture conditions] using simple [<u>Horton</u>] to complex [Green Ampt] methods; land <u>surface runoff</u> [effective rainfall]; stream routing [ranging from simple lagging or shifting based on general travel velocities to flow dependent travel rates during events without backwater or floodplain storage effects (<u>kinematic wave</u>) to simple floodplain/channel storage routers to full dynamic models]; <u>reservoir routing</u>; <u>hydrographs</u>; <u>discharge profile for various probability floods</u>; snowmelt runoff; statistical analysis of stream gage peak flow data; statistical analysis of reservoir storage; reservoir operations; long term rainfall runoff simulations and statistical analysis of simulations to arrive at flood statistics.
  Units:
  - Flow - cubic feet per second (cfs or second feet)
  - Volume - acre feet (1 cfs per day = 2 AcFt), inches of runoff per acre.
  - Probability - (1% chance or 100-year flood) [Note 100-year rainfall does

not necessarily equal the 100-year flood because other factors come into play but often this assumption is made, which is planned and has been used on South Boulder Creek.]

- **HYDRAULICS - PREDICTION OF WHERE THE FLOW WILL GO, AND ITS CHARACTER** (depth, water elevation, velocity, ponded, tranquil [subcritical], turbulent [supercritical] or unstable [critical])

Tasks and Topics Involved:
Land surface topographic mapping, field instrument survey, floodplain flow patterns, representative cross sections, hydraulic modeling [one dimensional, two dimensional, three dimensional], water surface profile analysis, flow splits, bridge, culvert, control structure and feature hydraulic analysis, floodplain delineation and mapping, floodway analysis and mapping, debris blockage analysis; junction, subcritical, critical, supercritical, and hydraulic jump analysis
Units:

- Velocity - feet per second (fps)
  0-2 slow, non erosive, sediment settles.
  2-8 moderate, minor erosion begins depending on soils, vegetation, and magnitude. Sediment from upstream passes through, more so with higher velocity.
  8-15 high, significant erosion, rock lining necessary. Occurs at culverts, bridges, and above or below drop structures/low dams. Deep flows in creeks can be in this range.
  15 ± extreme, flow over low dam, deep constrictions, pressurized conduits.
- Depth - feet (ft)
- Froude No. [no dimension, indicator of character of flow]
  < 1 subcritical [reservoir to moderate moving water] sensitive to downstream effects
  = 1 critical [transitioning flow, moderate to high velocity, unstable, wavy]
  > 1 supercritical [spillway] steep stream, controlled by upstream effects and discharge, jumps up to subcritical state with large downstream backwater
- Energy - feet of water (Accountants bookkeep dollars, engineers bookkeep energy to do hydraulic analysis.)
- Momentum - force

- **GEOMORPHOLOGY - PREDICTION OF STREAM BED AND BANK MOVEMENT, AND SEDIMENT FLOW AND DEPOSITION** (and related hydraulic effect or outcome)

  Tasks and Topics Involved:
  Agradation, degradation, local scour [banks, bridges, dams], general scour, alluvial fans, bank erosion
  Units:
  Depth of scour (feet)
  Tractive Force (lb/ft^2)
  Shear Stress (lb/ft^2)
  Bed movement (feet)

- **HAZARD, RISK AND DAMAGE ANALYSIS - HAZARDS ARE THE NEGATIVE OUTCOMES [e.g. STRUCTURE LOSS BY UNDERMINING FLOODING OR WASHING AWAY) OF A PHENOMENON (EROSION) OR FAILURE (DAM WASH OUT]; RISK ANALYSIS IS ASSIGNING PROBABILITY TO VARIOUS EVENTS AND PHENOMENA; DAMAGE ANALYSIS IS THE COMBINATION ANALYSIS OF THE ABOVE TO CONCLUDE THE GENERAL MAGNITUDE OR SPECIFIC DETERMINATION IN DOLLARS, LOSS OF LIFE, OF THE LIKELY OUTCOMES OVER TIME**

  Tasks and Topics Involved:
  Hazards (loss of life, injury, flooding, sedimentation, debris impact), damage (qualitative [range of depths of flooding and approximate areas for various event magnitudes], quantitative [depth of inundation and estimated dollar amount of damage for various flood events, analysis of long term cumulative damages or average annual damage, utility and infrastructure, public inconvenience])
  Units:
  Probability, 5-, 10-, 100-year flood damage dollars, average annual damages, general depths of flooding (feet), velocity hazards (fps), depth velocity multipliers ft x fps anything above 5 to 6 trouble. (A car floats in 18 inches and totals car because the electrical system is flooded.)

- **FHAD - FLOOD HAZARD AREA DEFINITION: A FLOODPLAIN DELINEATION STUDY UNDER THE AUSPICES OF THE URBAN DRAINAGE AND FLOOD CONTROL DISTRICT (UDFCD) CONDUCTED IN AGREEMENT WITH LOCAL COMMUNITIES.** Usually involves topographic mapping of the water course, cursory meteorology from published data, hydrology, hydraulics, and floodplain profile and map drawing preparation.

- **FIRM AND FIS - FLOOD INSURANCE RATE MAP AND FLOOD INSURANCE STUDY. THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) CONDUCTS FIS AND PREPARES FIRM'S IN COOPERATION WITH LOCAL COMMUNITIES.** For communities in compliance with FEMA requirements, Federally subsidized flood insurance is made available. Communities are responsible to provide floodplain mapping updates where developers or communities have modified the floodplains shown in the FIRM. This modification process is called a Letter of Map Revision (LOMR or CLOMR) and has been troublesome because of the sheer magnitude of changes that take place and extensive LOMR requirements. FEMA and UDFCD are working on a pilot program to help everyone with this process.

- **MASTER PLANNING (PHASE A): A STUDY WHICH FIRST FOCUSES ON CHARACTERIZING THE TYPE OF FLOODING, HAZARDS, AND CAUSATIVE FACTORS, IDENTIFIES COMPONENTS OR STRATEGIES WHICH COULD BE USED TO MITIGATE OR CORRECT PROBLEMS, THEN FORMULATES COMPREHENSIVE ALTERNATIVES AND SCREENS TO THE MOST VIABLE ALTERNATIVES IN CONSENSUS WITH THE LOCAL COMMUNITIES. THESE ALTERNATIVES ARE FURTHER REFINED, COST ESTIMATES, ADVANTAGES - DISADVANTAGES COMPARED, AND RECOMMENDATIONS MADE. THE PARTICIPATING COMMUNITIES AND UDFCD SELECT THE PLAN INCLUDING DIRECTING MODIFICATIONS WHICH MAY HAVE BEEN REALIZED DURING THE ANALYSIS AND REVIEW PROCESS.**

- **CONCEPTUAL AND/OR PRELIMINARY ENGINEERING PLAN (PHASE B): ONCE AN ALTERNATIVE IS SELECTED, THE INITIAL LAYOUT AND KEY DETAILS WHICH SUPPORT THE FEASIBILITY OF THE PLAN ARE REFINED AND ILLUSTRATED ON ENGINEERING DRAWINGS. SUPPORTIVE NARRATIVE OF THE PLANNING PROCESS, THE PLAN, AND OPINIONS OF PROBABLE COSTS ARE PREPARED.**

Explanation of Terms

For more information, please see Circular 1123: The Stream-Gaging Program of the U.S. Geological Survey.

Control

designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure

a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic foot per second

(ft^3/s also CFS) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meter per second.

Discharge

is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Drainage area

of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point.

Drainage basin

is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height

(G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station

is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hydrologic unit

is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Instantaneous discharge

is the discharge at a particular instant of time.

Mean discharge

(MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

National Geodetic Vertical Datum of 1929

(NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level". Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Sea level
: refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929.

Stage
: *See* Gage height

Stage-discharge relation
: is the relation between gage height (stage) and the volume of water per unit of time (discharge) flowing in a channel.

Streamflow
: is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected be diversion or regulation.

Surface area
: of a lake is that area, in acres, outlined on the latest USGS topographic map as the boundary of the lake and measured by a planimeter. In localities not covered by topographic maps, the areas are computed from the best maps available. All areas shown are those corresponding to the stage existing at the time when the planimetered map was made.

Water year
: is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1992, is called the "1992 water year."

We are aware of a problem with the clickable county imagemaps. When you click on a map you may not get stations for the county you expected, or the click may register as having missed the state. We are working on this problem.

Go to the Colorado NWIS-W Data Retrieval page
Go to the Colorado Water Resources page
??Get help with the terms used on these pages
Other states with USGS surface-water data retrieval pages

Comments and questions are welcome! Please visit our feedback page or email h2oteam@usgs.gov.

This page was created in real time by the NWIS-W package: (NWIS-W: 3.1 ; API: 3.01 ; display: 3.0)

APPENDIX A

UDSWMM

n MODEL

10-YEAR
50-YEAR
100-YEAR
500-YEAR

UDSWMM

10-YEAR MODEL

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URBAN DRAINAGE STORM WATER MANAGEMENT MODEL -  32 BIT VERSION 1998
        REVISED BY UNIVERSITY OF COLORADO AT DENVER

 *** ENTRY MADE TO RUNOFF MODEL ***


 model sbc_1td.swi
 10-year model

0NUMBER OF TIME STEPS  865
0INTEGRATION TIME INTERVAL (MINUTES)     5.00

  1.0 PERCENT OF IMPERVIOUS AREA HAS ZERO DETENTION DEPTH
0FOR   288 RAINFALL STEPS, THE TIME INTERVAL IS    5.00 MINUTES
0FOR RAINGAGE NUMBER   1   RAINFALL HISTORY IN INCHES PER HOUR

      .04      .04      .04      .04      .04      .04      .04      .04      .04      .04
      .04      .04      .04      .04      .04      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .06      .06      .06      .06      .06      .06      .06      .06
      .06      .06      .06      .07      .07      .07      .07      .07      .07      .07
      .07      .08      .08      .08      .08      .08      .08      .08      .09      .09
      .09      .09      .10      .10      .10      .10      .11      .11      .11      .12
      .12      .12      .13      .13      .14      .15      .15      .16      .17      .18
      .20      .21      .23      .25      .27      .30      .34      .39      .45      .54
      .66      .83     1.09     1.50     2.16     2.77     2.57     1.80     1.27      .94
      .73      .59      .49      .42      .36      .32      .29      .26      .24      .22
      .20      .19      .18      .17      .16      .15      .14      .14      .13      .13
      .12      .12      .11      .11      .11      .10      .10      .10      .10      .09
      .09      .09      .09      .09      .08      .08      .08      .08      .08      .08
      .07      .07      .07      .07      .07      .07      .07      .07      .06      .06
      .06      .06      .06      .06      .06      .06      .06      .06      .06      .06
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .04      .04      .04      .04
      .04      .04      .04      .04      .04      .04      .04      .04      .04      .04
      .04      .04      .04      .04      .04      .04      .04      .04      .04      .04
      .04      .04      .04      .04      .04      .04      .04      .04      .03      .03
      .03      .03      .03      .03      .03      .03      .03      .03      .03      .03
      .03      .03      .03      .03      .03      .03      .03      .03      .03      .03
      .03      .03      .03      .03      .03      .03      .03      .03      .03      .03
      .03      .03      .03      .03      .03      .03      .03      .03      .03      .03
      .03      .03      .03      .03      .03      .03      .03      .03      .03      .03
      .03      .03      .03      .03      .03      .03      .03      .03      .03      .03
      .03      .03      .03      .03      .03      .03      .03      .03      .03      .03
      .03      .03      .03      .03      .02      .02      .02      .02
0FOR RAINGAGE NUMBER   2   RAINFALL HISTORY IN INCHES PER HOUR

      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .06      .06      .06      .06
      .06      .06      .06      .06      .06      .06      .06      .06      .06      .06
      .06      .06      .06      .06      .06      .06      .06      .06      .06      .06
      .06      .06      .06      .06      .07      .07      .07      .07      .07      .07
      .07      .07      .07      .07      .08      .08      .08      .08      .08      .09
      .09      .09      .10      .10      .10      .11      .11      .12      .13      .14
      .15      .16      .17      .19      .21      .24      .27      .31      .37      .45
      .56      .71      .95     1.33     1.95     2.54     2.34     1.61     1.12      .82
      .63      .50      .41      .34      .29      .25      .22      .20      .18      .17
      .15      .14      .13      .12      .12      .11      .11      .10      .10      .09
      .09      .09      .09      .08      .08      .08      .08      .08      .07      .07
      .07      .07      .07      .07      .07      .07      .07      .06      .06      .06
      .06      .06      .06      .06      .06      .06      .06      .06      .06      .06
      .06      .06      .06      .06      .06      .06      .06      .06      .06      .06
      .06      .06      .06      .06      .06      .06      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05
0FOR RAINGAGE NUMBER   3   RAINFALL HISTORY IN INCHES PER HOUR

      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .06      .06      .06      .06      .06      .06
      .06      .06      .06      .06      .06      .06      .06      .06      .06      .06
      .06      .06      .06      .06      .06      .06      .06      .06      .06      .06
      .06      .06      .06      .06      .06      .06      .07      .07      .07      .07
      .07      .07      .07      .07      .07      .07      .07      .08      .08      .08
      .08      .08      .08      .08      .09      .09      .09      .09      .10      .10
      .10      .11      .11      .12      .12      .13      .13      .14      .15      .16
      .17      .18      .20      .22      .24      .27      .30      .34      .39      .45
      .53      .65      .81     1.05     1.45     2.25     1.77     1.22      .92      .72
      .59      .49      .42      .36      .32      .28      .25      .23      .21      .19
      .18      .17      .16      .15      .14      .13      .12      .12      .11      .11
      .11      .10      .10      .10      .09      .09      .09      .09      .08      .08
      .08      .08      .08      .08      .07      .07      .07      .07      .07      .07
      .07      .07      .07      .07      .07      .07      .06      .06      .06      .06
      .06      .06      .06      .06      .06      .06      .06      .06      .06      .06
      .06      .06      .06      .06      .06      .06      .06      .06      .06      .06
      .06      .06      .06      .06      .06      .06      .06      .06      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
      .05      .05      .05      .05      .05      .05      .05      .05      .05      .05
```

```
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05
0FOR RAINGAGE NUMBER    4   RAINFALL HISTORY IN INCHES PER HOUR

        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .06
        .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
        .06       .06       .06       .06       .06       .07       .07       .07       .07       .07
        .07       .07       .07       .07       .07       .07       .08       .08       .08       .08
        .08       .08       .08       .08       .08       .09       .09       .09       .09       .09
        .09       .10       .10       .10       .10       .11       .11       .11       .11       .12
        .12       .12       .13       .13       .14       .14       .15       .16       .16       .17
        .18       .19       .21       .22       .24       .26       .29       .32       .36       .41
        .48       .57       .70       .90      1.23      1.94      1.51      1.04       .79       .63
        .52       .44       .38       .34       .30       .27       .25       .23       .21       .20
        .19       .18       .17       .16       .15       .15       .14       .14       .13       .13
        .12       .12       .12       .11       .11       .11       .10       .10       .10       .10
        .10       .09       .09       .09       .09       .09       .09       .08       .08       .08
        .08       .08       .08       .08       .08       .07       .07       .07       .07       .07
        .07       .07       .07       .07       .07       .07       .06       .06       .06       .06
        .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
        .06       .06       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .04       .04
        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .04       .04       .04       .04       .04       .03       .03       .03       .03       .03
        .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
        .03       .03       .03       .03       .03       .03       .03       .03
0FOR RAINGAGE NUMBER    5   RAINFALL HISTORY IN INCHES PER HOUR

        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
        .06       .06       .06       .07       .07       .07       .07       .07       .07       .07
        .07       .08       .08       .08       .08       .08       .08       .09       .09       .09
        .09       .10       .10       .10       .11       .11       .12       .12       .13       .13
        .14       .15       .16       .17       .19       .20       .22       .25       .28       .32
        .37       .45       .55       .72      1.01      1.69      1.26       .84       .63       .50
        .41       .34       .30       .26       .23       .21       .19       .18       .17       .15
        .15       .14       .13       .12       .12       .11       .11       .11       .10       .10
        .10       .09       .09       .09       .09       .08       .08       .08       .08       .08
        .08       .07       .07       .07       .07       .07       .07       .07       .07       .06
        .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
        .06       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
        .05       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
        .04       .04       .03       .03       .03       .03       .03       .03       .03       .03
        .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
        .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
        .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
        .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
        .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
        .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
        .03       .03       .03       .03       .03       .03       .03       .03
1


 model sbc_ltd.swi
 10-year model


 SUBAREA   GUTTER    WIDTH     AREA   PERCENT     SLOPE   RESISTANCE FACTOR  SURFACE STORAGE(IN)   INFILTRATION RATE(IN/HR)  GAGE
 NUMBER  OR MANHOLE  (FT)      (AC)   IMPERV.   (FT/FT)     IMPERV.    PERV.    IMPERV.    PERV.  MAXIMUM MINIMUM DECAY RATE  NO
   227      226      7480.    286.0     30.0     .4076       .300      .500      .300     .470     3.90     .50     .00024    5
   226      225      6240.    152.0     30.0     .5701       .300      .500      .300     .470     3.90     .50     .00024    5
   225      224      8440.    488.0     20.0     .3704       .300      .500      .300     .470     4.50     .60     .00010    5
   224      223     11920.    309.0     20.0     .2882       .300      .500      .300     .450     3.50     .20     .00100    5
   222      221     13040.    250.0     20.0     .5139       .300      .500      .300     .450     3.90     .50     .00024    5
   221      220     15160.    506.0     20.0     .4510       .300      .500      .300     .450     3.50     .20     .00100    5
   219      218      3320.     44.0      6.0     .2945       .300     ..500      .300     .470     3.90     .50     .00024    5
   220      219     10200.    437.0      5.0     .3544       .300      .500      .300     .480     4.50     .60     .00010    5
   223      222      2280.    182.0      6.0     .4444       .300      .500      .300     .470     4.80     .50     .00010    5
   214      216     16320.    505.0     20.0     .4409       .300      .500      .300     .450     3.90     .50     .00024    5
   212      214     13760.    482.0     15.0     .4325       .300      .500      .300     .450     3.90     .50     .00024    5
   211      213     11800.    511.0     20.0     .3390       .300      .500      .300     .440     3.50     .20     .00100    5
   210      212     12200.    588.0      5.0     .2915       .300      .500      .300     .420     4.80     .50     .00010    5
   213      215      6480.    539.0      6.0     .3847       .300      .400      .150     .420     3.90     .50     .00024    5
   215      217      9720.    245.0      5.0     .2985       .250      .450      .300     .500     3.90     .50     .00024    5
   209      211      6800.    284.0      6.0     .4718       .300      .400      .150     .460     3.90     .50     .00024    5
   185      186      8520.    461.0     15.0     .2842       .300      .500      .300     .450     4.80     .50     .00010    5
   184      185      7440.    232.0      8.0     .3661       .300      .500      .300     .400     3.90     .50     .00024    5
   182      183     16000.    599.0      6.0     .1690       .300      .500      .300     .450     4.50     .60     .00010    5
   180      181     13280.    438.0      6.0     .2725       .300      .500      .300     .450     4.50     .60     .00010    5
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  183     184    7080.   217.0     6.0   .2820    .300    .500    .300    .400   3.90    .50    .00024   5
  181     182    9200.   507.0     7.0   .2836    .300    .500    .300    .450   4.50    .60    .00010   5
  179     180    9040.   501.0     5.0   .2840    .250    .450    .300    .500   3.50    .20    .00100   4
  204     204   13440.   854.0    30.0   .3985    .300    .500    .300    .470   3.90    .50    .00024   5
  203     203    7000.   258.0    25.0   .4793    .300    .500    .300    .470   3.90    .50    .00024   5
  199     201   15400.   843.0     5.0   .3343    .300    .500    .300    .470   4.50    .60    .00010   5
  198     200   14440.   542.0     5.0   .2842    .300    .500    .300    .450   3.90    .50    .00024   5
  200     202    7640.   250.0     5.0   .2900    .300    .500    .300    .500   4.80    .50    .00010   5
  196     198   14440.   797.0     5.0   .4198    .250    .450    .300    .450   3.90    .50    .00024   5
  195     196   14640.   387.0     5.0   .2370    .250    .450    .300    .500   4.50    .60    .00010   5
  197     199   18040.   634.0     5.0   .2744    .250    .450    .300    .450   3.90    .50    .00024   5
  190     195    9520.   251.0     5.0   .2833    .250    .450    .300    .470   3.90    .50    .00024   5
  189     194   15120.   847.0     9.0   .3487    .150    .400    .300    .500   4.50    .50    .00010   4
  208     208    8520.   275.0     5.0   .3120    .250    .450    .300    .450   3.90    .50    .00024   5
  207     207    8560.   772.0     6.0   .4592    .150    .400    .300    .430   3.50    .20    .00100   5
  206     206    7720.   250.0     5.0   .3693    .250    .450    .300    .470   3.90    .50    .00024   5
  205     205    9800.   395.0     7.0   .4113    .150    .400    .300    .450   3.90    .50    .00024   4
  187     192    1540.   115.0     6.0   .5495    .150    .400    .300    .430   3.50    .20    .00100   4
  188     193    8960.   273.0     9.0   .3629    .150    .400    .300    .400   3.50    .20    .00100   4
  186     187   19200.  1018.0     8.0   .3200    .150    .400    .300    .450   3.90    .50    .00024   4
  177     178   13000.   392.0     7.0   .2685    .150    .400    .300    .450   3.90    .50    .00024   5
  178     179    7720.   211.0     5.0   .3191    .250    .450    .300    .420   3.50    .20    .00100   5
  175     176   15040.   716.0     5.0   .3492    .250    .450    .300    .400   3.50    .20    .00100   4
  176     177   12040.   233.0     6.0   .2396    .250    .450    .300    .450   3.90    .50    .00024   4
  174     175    3800.    78.0     5.0   .2684    .250    .450    .300    .450   3.90    .50    .00024   4
  173     174    8120.   188.0     8.0   .3071    .150    .400    .300    .430   3.90    .50    .00024   4
  172     173   11520.   230.0     5.0   .3401    .250    .450    .300    .400   3.50    .20    .00100   4
  171     172    3720.    73.0     7.0   .2083    .150    .400    .300    .450   3.90    .50    .00024   4
  167     168    7240.   259.0     5.0   .2386    .300    .500    .300    .500   3.90    .50    .00024   5
  168     169    6280.   175.0     5.0   .2720    .300    .500    .300    .500   3.90    .50    .00024   5
  164     165   13840.   350.0     6.0   .3519    .300    .500    .300    .470   3.90    .50    .00024   4
  166     167   10720.   215.0     6.0   .3188    .300    .500    .300    .500   3.90    .50    .00024   4
  165     166    1040.    99.0     5.0   .2782    .300    .500    .300    .500   3.90    .50    .00024   4
  170     171    8840.   139.0     5.0   .2244    .250    .450    .300    .400   3.50    .20    .00100   4
  169     170    9680.   332.0     5.0   .2538    .250    .450    .300    .400   3.50    .20    .00100   4
  162     163    5280.   112.0     5.0   .2935    .250    .450    .300    .470   3.90    .50    .00100   4
  163     164    8000.    76.0     5.0   .3938    .300    .500    .300    .450   3.90    .50    .00024   4
  156     157    1660.   103.0     7.0   .3821    .250    .450    .300    .460   3.50    .20    .00100   4
  160     161    8760.   341.0     5.0   .3148    .300    .500    .300    .470   3.90    .50    .00100   4
  161     162   11600.   362.0     5.0   .3269    .300    .500    .300    .470   3.90    .50    .00100   5
  158     159   12760.   476.0     5.0   .2852    .300    .500    .300    .470   3.90    .50    .00100   5
  159     160    6720.   342.0     6.0   .3021    .300    .500    .300    .470   3.90    .50    .00100   4
  155     156    9960.   523.0     6.0   .3280    .250    .450    .300    .400   3.90    .50    .00024   4
  157     158   11400.   344.0     5.0   .2728    .250    .450    .300    .460   3.90    .50    .00024   4
  152     153    8760.   249.0     5.0   .2831    .300    .500    .300    .500   3.90    .50    .00024   4
  153     154    5760.   249.0     6.0   .3299    .250    .450    .300    .450   3.90    .50    .00024   4
  154     155    2180.   161.0     5.0   .3792    .300    .500    .300    .400   3.50    .20    .00100   4
  148     149    6440.   214.0     6.0   .3001    .250    .450    .300    .400   3.50    .20    .00100   4
  149     150    5560.    58.0     6.0   .1610    .250    .450    .300    .400   3.50    .20    .00100   4
  150     151    8240.   189.0     5.0   .2338    .250    .450    .300    .400   3.50    .20    .00100   4
  151     152   13960.   501.0     8.0   .3572    .250    .450    .300    .450   3.90    .50    .00024   4
  145     146    6930.   318.0     5.0   .2782    .300    .500    .300    .460   3.90    .50    .00024   4
  146     147   11200.   283.0     5.0   .2727    .250    .450    .300    .500   3.90    .50    .00024   4
  147     148    5440.   453.0     5.0   .3306    .250    .450    .300    .470   3.90    .50    .00024   4
  141     142    4160.   103.0     6.0   .2843    .250    .450    .300    .450   3.90    .50    .00024   4
  142     143    9680.   187.0     5.0   .3565    .250    .450    .300    .470   3.90    .50    .00024   4
  143     144    4400.   274.0     5.0   .3218    .300    .500    .300    .460   3.90    .50    .00024   4
  144     145    4320.    79.0     5.0   .2164    .300    .500    .300    .500   3.90    .50    .00024   4
  139     140    8640.   184.0     6.0   .3125    .250    .450    .300    .460   3.90    .50    .00024   4
  140     141    7600.   132.0     5.0   .2104    .250    .450    .300    .450   3.50    .20    .00100   4
  136     137    6200.   142.0    15.0   .2104    .150    .400    .150    .470   3.50    .20    .00100   4
  137     138    8780.   383.0    10.0   .0823    .150    .400    .150    .420   3.50    .20    .00100   4
  138     139    3760.    70.0    15.0   .1898    .250    .450    .150    .450   3.90    .50    .00024   4
  133     134   20040.   530.0     8.0   .3229    .250    .450    .300    .460   3.90    .50    .00024   4
  134     135    8160.   160.0     5.0   .2440    .250    .450    .300    .450   3.90    .50    .00024   5
  135     136    6000.   282.0     5.0   .2300    .250    .450    .300    .460   3.90    .50    .00024   5
  130     131    9720.   290.0    12.0   .3042    .150    .400    .150    .500   3.90    .50    .00024   4
  131     132    9120.   213.0     8.0   .1964    .250    .450    .300    .470   3.90    .50    .00024   4
  132     133   15440.   496.0     7.0   .1806    .250    .450    .300    .470   3.90    .50    .00024   4
  128     129    7040.   151.0    12.0   .5988    .300    .500    .200    .450   3.90    .50    .00024   4
  129     130    6720.   110.0    15.0   .2077    .150    .400    .150    .450   3.90    .50    .00024   4
  124     125    7600.   220.0     5.0   .1948    .300    .500    .300    .500   3.90    .50    .00024   4
  125     126    6840.    88.0     5.0   .2679    .300    .500    .300    .500   3.90    .50    .00024   4
  126     127   16000.   548.0     8.0   .2341    .250    .450    .300    .480   3.90    .50    .00024   4
  120     124   15040.   397.0    13.0   .1127    .150    .400    .150    .500   3.90    .50    .00024   4
  127     128   17320.   472.0     8.0   .2160    .250    .450    .300    .470   3.90    .50    .00024   4
  118     122   18880.   481.0     8.0   .2138    .150    .400    .200    .450   3.90    .50    .00024   4
  119     123    8320.   389.0    12.0   .1613    .150    .400    .200    .450   3.90    .50    .00024   4
  113     116   19040.   702.0     5.0   .1137    .300    .500    .300    .500   3.90    .50    .00024   4
   93      96   12640.   579.0     5.0   .2560    .250    .450    .300    .460   3.90    .50    .00024   4
  230      95    8000.   200.0     5.0   .2312    .250    .450    .300    .450   3.90    .50    .00024   4
   88      85    3840.   118.0     5.0   .2369    .250    .450    .300    .400   3.90    .50    .00024   4
   89      86   11760.   331.0     5.0   .2521    .250    .450    .300    .400   3.90    .50    .00024   4
   90      87   16080.   655.0     5.0   .1364    .250    .450    .300    .400   3.50    .20    .00100   4
   84      81   12440.   303.0     5.0   .2148    .250    .450    .300    .400   3.50    .20    .00100   4
   85      82    2220.    96.0     5.0   .1143    .250    .450    .300    .400   3.50    .20    .00100   4
   86      83    4760.   197.0     5.0   .1438    .250    .450    .300    .400   3.90    .50    .00024   4
   87      84    5440.   106.0     5.0   .1919    .250    .450    .300    .400   3.90    .50    .00024   4
   83      80   31300.   862.0     9.0   .1050    .150    .400    .200    .400   3.50    .20    .00100   4
   74     121    9400.   326.0     6.0   .1923    .150    .400    .200    .400   3.50    .20    .00024   4
   70      79   16040.   633.0     7.0   .1589    .250    .450    .300    .400   3.50    .20    .00100   4
   61      75    3200.    62.0     5.0   .3363    .250    .450    .300    .400   3.90    .50    .00024   4
   63      76   12840.   379.0     8.0   .1972    .250    .450    .300    .400   3.50    .20    .00100   4
   65      77    4040.    66.0     8.0   .2100    .250    .450    .300    .430   3.90    .50    .00024   4
   66      78    7560.   256.0     5.0   .1250    .250    .450    .300    .450   3.90    .50    .00024   4
   58      74    9400.   411.0     8.0   .3384    .250    .450    .300    .400   3.50    .20    .00100   4
  228      89    8480.   319.0     8.0   .1659    .150    .400    .150    .450   3.50    .20    .00100   4
  229      93    4880.   111.0     5.0   .2059    .250    .450    .300    .450   4.50    .60    .00010   4
   91      88   16520.   352.0     6.0   .1576    .250    .450    .300    .450   3.90    .50    .00024   4
  114     117   12000.   390.0    15.0   .1571    .150    .400    .150    .430   3.90    .50    .00024   4
  115     118   16440.   453.0     6.0   .1736    .250    .450    .300    .460   3.90    .50    .00024   4
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 116   119    2600.   34.0  15.0  .1472  .150  .400  .150  .500  3.90  .50  .00024  4
 117   120    7960.  220.0  15.0  .1331  .150  .400  .150  .470  3.90  .50  .00024  4
 101   104    6880.  205.0  15.0  .1564  .150  .400  .150  .450  3.50  .20  .00100  4
 102   105    9120.  343.0  10.0  .1175  .150  .400  .150  .500  3.90  .50  .00024  4
 103   106   12760.  273.0   8.0  .1121  .250  .450  .300  .500  3.90  .50  .00024  4
  99   102   10440.  314.0  10.0  .1275  .150  .400  .150  .480  3.90  .50  .00024  4
 100   103    8170.  150.0   8.0  .1343  .150  .400  .150  .450  3.90  .50  .00100  4
 109   112    7280.  208.0   7.0  .4086  .250  .450  .300  .470  3.90  .50  .00024  4
 110   113   10120.  209.0   7.0  .2899  .250  .450  .300  .500  3.90  .50  .00024  4
 111   114    9000.  230.0   5.0  .2973  .300  .500  .300  .470  3.90  .50  .00024  5
 112   115    6480.  102.0   6.0  .4123  .250  .450  .300  .460  3.90  .50  .00024  4
 107   110    4140.  399.0   8.0  .3550  .250  .450  .300  .470  3.90  .50  .00024  4
 105   108   12480.  202.0   5.0  .3863  .300  .500  .300  .470  3.90  .50  .00024  4
 106   109    5520.  216.0   7.0  .1680  .250  .450  .300  .500  3.90  .50  .00024  4
 108   111   11200.  199.0   5.0  .4732  .300  .500  .300  .460  3.90  .50  .00024  4
 104   107    5440.  106.0   8.0  .2557  .250  .450  .300  .480  3.90  .50  .00024  4
  97   100   19960.  458.0   7.0  .5159  .250  .450  .300  .480  3.50  .20  .00100  4
  95    98   14000.  309.0  18.0  .1544  .250  .450  .200  .470  3.50  .20  .00100  4
  96    99    2880.   55.0  10.0  .3003  .250  .450  .300  .480  3.50  .20  .00100  4
  98   101    1380.   82.0   8.0  .1629  .250  .450  .200  .470  3.50  .20  .00100  4
  94    97   11440.  472.0   8.0  .3012  .250  .450  .300  .470  3.90  .50  .00024  4
  92    94    5120.  475.0   7.0  .1426  .250  .450  .300  .500  3.90  .50  .00024  4
  56    72    8960.  197.0   7.0  .1792  .150  .400  .150  .420  3.50  .20  .00100  4
  57    73   16000.  636.0   8.0  .1300  .150  .400  .150  .440  3.90  .50  .00024  4
  55    71    9640.  261.0   7.0  .1967  .250  .450  .300  .470  3.50  .20  .00100  4
  43    59    8040.  296.0   9.0  .1912  .150  .400  .150  .400  3.90  .50  .00024  4
  47    63    7960.  234.0   6.0  .4083  .250  .450  .300  .470  3.90  .50  .00024  4
  48    64    7480.  258.0   6.0  .3750  .250  .450  .300  .500  3.90  .50  .00024  4
  45    61   15000.  552.0   8.0  .2077  .250  .450  .200  .470  3.50  .20  .00100  4
  42    46    6440.  197.0   7.0  .3799  .250  .450  .200  .400  3.50  .20  .00100  4
  44    60    8160.  225.0   7.0  .2515  .250  .450  .200  .470  3.50  .20  .00100  4
  46    62    2800.   39.0   5.0  .3963  .250  .450  .300  .470  3.50  .20  .00100  4
  50    66    6120.  108.0   6.0  .4444  .250  .450  .300  .500  3.90  .50  .00024  4
  51    67   13240.  636.0   7.0  .3651  .250  .450  .300  .470  3.50  .20  .00100  4
  53    69    7480.  197.0  12.0  .2552  .150  .400  .150  .470  3.50  .20  .00100  4
  54    70   13920.  246.0  12.0  .2827  .150  .400  .150  .420  3.50  .20  .00100  4
  49    65    7920.  212.0   5.0  .3375  .250  .450  .300  .480  3.90  .50  .00024  4
  52    68    4240.   80.0   7.0  .3917  .250  .450  .300  .500  3.50  .20  .00100  4
  41    42   15160.  593.0   8.0  .4922  .250  .450  .200  .450  3.90  .50  .00024  4
  39    40   13160.  356.0  20.0  .4570  .250  .450  .100  .450  3.90  .50  .00024  3
  40    41    6200.  205.0   9.0  .5172  .250  .450  .200  .500  3.50  .20  .00100  4
  18    18   15200.  565.0   7.0  .3792  .250  .450  .200  .420  3.50  .20  .00100  3
  19    20   10680.  606.0   9.0  .1670  .150  .400  .150  .470  3.90  .50  .00024  4
  20    21   13920.  379.0   6.0  .3275  .250  .450  .300  .400  3.90  .50  .00024  3
  14    14    6160.  132.0  25.0  .4006  .250  .450  .100  .500  3.50  .20  .00100  3
  15    15    3000.   36.0  25.0  .3169  .250  .450  .100  .450  3.50  .20  .00100  3
  16    16    3840.  117.0  25.0  .2094  .250  .450  .100  .400  3.50  .20  .00100  3
  17    17    5640.  156.0  20.0  .3423  .250  .450  .100  .400  3.50  .20  .00100  3
   8     8   14200. 1227.0  67.0  .2919  .250  .450  .050  .450  3.50  .20  .00100  3
  37    38    5060.  368.0   7.0  .2400  .250  .450  .200  .420  3.90  .50  .00024  4
  38    39   10280.  290.0   7.0  .3153  .250  .450  .300  .420  3.50  .20  .00100  4
  36    37   16320.  466.0   5.0  .1439  .250  .450  .300  .480  3.90  .50  .00024  4
  33    34   13680.  445.0   8.0  .1186  .150  .400  .200  .410  3.90  .50  .00024  4
  34    35    6280.  148.0   7.0  .2940  .250  .450  .300  .420  3.50  .20  .00100  4
  35    36   10680.  251.0   6.0  .1368  .250  .450  .300  .400  3.50  .20  .00100  4
  31    32    6520.  144.0   6.0  .2938  .250  .450  .300  .420  3.90  .50  .00024  4
  32    33   10360.  257.0  12.0  .1275  .150  .400  .150  .420  3.50  .20  .00100  4
  30    31    5440.  107.0   7.0  .2363  .150  .400  .150  .450  4.50  .60  .00010  3
  22    23    9840.  195.0   8.0  .1920  .250  .450  .200  .460  3.50  .20  .00100  3
  29    30   11560.  546.0  12.0  .0980  .150  .400  .150  .450  3.50  .20  .00100  4
  26    27    5080.  107.0   5.0  .2510  .250  .450  .300  .450  3.90  .50  .00024  3
  27    28    5040.  300.0   9.0  .1461  .150  .400  .150  .430  3.90  .50  .00024  3
  28    29    6120.  152.0   7.0  .2020  .150  .400  .150  .450  3.50  .20  .00100  4
  24    25    5920.  363.0   9.0  .3292  .250  .450  .300  .450  3.50  .20  .00100  3
  25    26    3720.   94.0   8.0  .1772  .150  .400  .150  .450  3.50  .20  .00100  3
  23    24    1740.  104.0   7.0  .1530  .250  .450  .300  .450  3.50  .20  .00100  3
  21    22   12000.  447.0  20.0  .2822  .150  .400  .200  .400  3.50  .20  .00100  3
   9     9   20640.  411.0   8.0  .2894  .250  .450  .300  .470  3.90  .50  .00024  2
  10    10    7520.  202.0   6.0  .3773  .250  .450  .300  .480  3.90  .50  .00024  2
   7     7    9880.  373.0   7.0  .2911  .300  .500  .300  .500  3.90  .50  .00024  2
   3     3   22000.  929.0   8.0  .3243  .250  .450  .200  .450  3.50  .20  .00100  2
   4     4   25560.  960.0   8.0  .2675  .250  .450  .200  .500  3.50  .20  .00100  2
   2     2   14480.  519.0   7.0  .4504  .300  .500  .300  .420  3.50  .20  .00100  2
   6     6   16100.  296.0  10.0  .4790  .300  .500  .300  .450  3.50  .20  .00100  2
   5     5   18300.  336.0   6.0  .2506  .300  .500  .300  .420  5.00  .60  .00006  2
   1     1   30900.  567.0   7.0  .5000  .300  .500  .300  .420  3.50  .20  .00100  2
  11    11    6000.  113.0  25.0  .3243  .250  .450  .200  .500  3.90  .50  .00024  2
  12    12    8360.  159.0   6.0  .3715  .300  .500  .300  .500  3.90  .50  .00024  2
  13    13   10480.  229.0   7.0  .3542  .300  .500  .300  .500  3.90  .50  .00024  2
 256   247   39100.  808.0   7.0  .1652  .250  .450  .200  .450  3.50  .20  .00100  2
 257   248   31200.  645.0   8.0  .2217  .250  .450  .200  .450  3.50  .20  .00100  2
 258   249   18300.  377.0   7.0  .1984  .250  .450  .300  .420  3.50  .20  .00100  2
 259   250    5300.  109.0   5.0  .1627  .250  .450  .300  .450  4.80  .50  .00010  2
 253   244   36900.  848.0  50.0  .2354  .300  .500  .300  .350  3.90  .50  .00024  2
 254   245    7300.  100.0   7.0  .2934  .250  .450  .200  .450  3.50  .20  .00100  2
 255   246   21800.  450.0   8.0  .2396  .250  .450  .300  .450  3.50  .20  .00100  2
  76    54   10300.  213.0   8.0  .3735  .300  .500  .300  .500  5.00  .60  .00006  2
  77    55   25900.  297.0   7.0  .4316  .300  .500  .300  .500  5.00  .60  .00006  2
  75    53    2400.   26.0   6.0  .4875  .300  .500  .300  .460  3.50  .20  .00024  2
  73    52   38400.  441.0  18.0  .3662  .300  .500  .300  .400  3.50  .20  .00100  2
  82    51   19700.  362.0  25.0  .3938  .250  .450  .300  .400  3.50  .20  .00100  2
  71    50   11300.  207.0  25.0  .4627  .300  .500  .400  .450  3.50  .20  .00100  2
  80    58   12000.  220.0   6.0  .3854  .300  .500  .300  .480  5.00  .60  .00006  2
  81    57   42200.  776.0   8.0  .5226  .250  .450  .200  .470  4.50  .60  .00010  2
  78    56   22000.  404.0  18.0  .4013  .250  .450  .300  .500  4.80  .50  .00010  2
  79    56   21400.  442.0  15.0  .3303  .300  .500  .300  .450  4.50  .60  .00010  2
  72    49   16000.  220.0  35.0  .5698  .300  .500  .300  .500  4.50  .50  .00010  2
  69    48    9400.  391.0  35.0  .2301  .250  .450  .300  .400  3.90  .50  .00024  2
1635  1635   12865.  317.0  12.0  .3700  .300  .500  .300  .450  3.50  .20  .00100  2
1645  1645    5640.  126.0   5.0  .2900  .250  .450  .150  .450  3.50  .20  .00100  2
1640  1640    8667.  200.0  10.0  .2900  .300  .300  .320  .450  3.50  .20  .00100  2
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 1630    1630    8660.  159.0     6.0   .1300    .400    .450    .150    .450   3.50   .20    .00100   2
 1625    1625   10700.  197.0     9.0   .2100    .200    .400    .150    .450   3.50   .20    .00100   1
 1610    1610    6780.  109.0     9.0   .0200    .200    .400    .150    .450   4.80   .50    .00010   1
 1665    1665   14692.  390.0    35.0   .2870    .200    .400    .150    .450   3.50   .20    .00100   2
 1605    1605    7689.   81.0     6.0   .1100    .200    .400    .150    .450   4.80   .50    .00010   1
 1660    1660   23764.  552.0     7.0   .2000    .200    .450    .150    .460   3.90   .50    .00024   2
 1650    1650   13676.  382.0     7.0   .2300    .200    .200    .150    .450   3.50   .20    .00100   2
 1655    1655   22832.  558.0     6.0   .1600    .200    .450    .150    .460   3.50   .20    .00100   2
 1620    1620   17977.  324.0     7.0   .0500    .200    .400    .150    .470   4.80   .50    .00010   2
 1615    1615   11967.  228.0     7.0   .1200    .200    .400    .150    .470   4.50   .60    .00010   2
 1710    1710    9974.  245.0     5.0   .0100    .200    .400    .150    .350   3.90   .50    .00024   1
 1600    1600    3273.   25.0     7.0   .0500    .200    .450    .150    .600   5.00   .70    .00002   1
 1705    1705    2245.   67.0     5.0   .0100    .200    .400    .150    .350   3.90   .50    .00024   2
 1450    1450    4800.  198.0     5.0   .0200    .150    .450    .150    .600   3.90   .50    .00024   1
 1445    1445    6714.  164.0     5.0   .0800    .200    .400    .150    .350   5.00   .60    .00006   1
 1440    1440   12663.   66.0     7.0   .0100    .150    .450    .150    .600   3.90   .50    .00024   1
 1480    1938   34034.  732.0    35.0   .0200    .200    .400    .150    .300   3.90   .50    .00024   1
 1435    1435    6984.  232.0     5.0   .0800    .200    .400    .150    .460   5.00   .60    .00006   1
 1430    1430    6338.   82.0     5.0   .0700    .200    .400    .150    .460   5.00   .60    .00006   1
 1425    1425    4940.   68.0     6.0   .0400    .200    .400    .150    .600   5.00   .70    .00002   1
 1420    1420   26178.   59.0     9.0   .0220    .200    .450    .150    .600   3.90   .50    .00024   1
 1570    1570    3089.  171.0     6.0   .3540    .200    .450    .150    .450   3.50   .20    .00100   2
 1555    1556    7055.   83.0     7.0   .1300    .200    .450    .150    .450   4.80   .50    .00010   1
 1565    1565    4112.   95.0     9.0   .3200    .200    .450    .150    .470   3.50   .20    .00100   2
 1560    1560    5353.  123.0     8.0   .4400    .200    .450    .150    .450   3.50   .20    .00100   2
 1550    1550   20321.  424.0     7.0   .0700    .200    .400    .150    .450   3.50   .20    .00100   1
 1415    1415    5148.  307.0     5.0   .0260    .200    .400    .150    .500   3.90   .50    .00024   1
 1410    1410    5300.  195.0     5.0   .0100    .150    .450    .150    .500   3.90   .50    .00024   1
 1455    1455   19899.  542.0    11.0   .0037    .200    .400    .150    .350   4.80   .50    .00010   1
 1490    1490    8100.  698.0    10.0   .0620    .200    .400    .150    .350   4.50   .50    .00010   1
 1465    1465   19569.   93.0    10.0   .0348    .150    .500    .150    .350   4.50   .60    .00010   1
 1460    1460   12745.  286.0     9.0   .0603    .200    .400    .150    .350   5.00   .60    .00006   1
 1575    1575   10554.  222.0    10.0   .4060    .200    .450    .150    .450   3.50   .20    .00100   2
 1545    1545   15603.  253.0     7.0   .0890    .200    .400    .150    .450   4.80   .50    .00010   1
 1530    1530    8269.  345.0     6.0   .1080    .200    .400    .150    .350   4.80   .50    .00010   1
 1525    1525   14343.   53.0    10.0   .0200    .150    .400    .150    .350   3.90   .50    .00024   1
 1505    1505   49306.  262.0    10.0   .0100    .150    .450    .150    .350   3.50   .20    .00100   1
 1520    1520   21460.   99.0    10.0   .0100    .200    .450    .150    .350   3.50   .20    .00100   1
 1715    1715    3131.  115.0     7.0   .1200    .150    .400    .150    .350   3.90   .50    .00024   1
 1515    1515    3666.    8.0    60.0   .0200    .150    .400    .150    .350   3.50   .20    .00100   1
 1540    1541   19881.  345.0    15.0   .0300    .200    .400    .150    .350   4.50   .60    .00010   1
 1510    1510   16588.   76.0     3.0   .0100    .150    .400    .150    .350   3.90   .50    .00024   1
 1500    1500   21483.  465.0    10.0   .0400    .200    .400    .150    .250   3.90   .50    .00024   1
  299     299   20092.   72.0    40.0   .1300    .150    .500    .150    .350   4.80   .50    .00010   1
  301     301   38137.  177.0    31.0   .1600    .150    .500    .150    .350   4.80   .50    .00010   1
  297     297   84806.  338.0    40.0   .1200    .150    .500    .150    .350   4.80   .50    .00010   1
  305    1917    1795.  103.0    10.0   .0240    .150    .350    .150    .250   3.90   .50    .00024   1
  304     304    2970.  150.0    10.0   .0240    .150    .350    .150    .250   3.90   .50    .00024   1
  262     262    3964.   39.0     5.0   .0200    .200    .400    .150    .250   3.90   .50    .00024   1
  264     264    1734.   26.0     5.0   .0200    .200    .400    .150    .250   3.90   .50    .00024   1
  243     243   46293.   82.0     7.0   .0200    .200    .350    .150    .350   3.90   .50    .00024   1
  384     384   27915.   77.0    45.0   .0900    .150    .500    .150    .350   4.80   .50    .00010   1
  290     290    4748.   29.0     5.0   .0250    .300    .400    .150    .400   3.90   .50    .00024   1
  353     353   12867.   41.0    50.0   .0700    .150    .500    .150    .350   5.00   .60    .00006   1
  350     350   13939.   51.0    70.0   .0550    .150    .400    .150    .350   4.80   .50    .00010   1
  351     351   17043.   59.0    70.0   .0600    .150    .450    .150    .350   5.00   .60    .00006   1
  376     376    1390.    3.0    10.0   .0100    .150    .450    .150    .350   4.80   .50    .00010   1
  368     368    7225.   99.0    50.0   .0070    .150    .450    .150    .350   3.90   .50    .00024   1
  361     361    6400.   30.0    60.0   .0060    .150    .450    .150    .350   3.90   .50    .00024   1
  369     369    7449.   17.0    60.0   .0400    .150    .450    .150    .350   4.80   .50    .00010   1
  354    1818    6316.    6.0    95.0   .0400    .150    .350    .150    .250   4.80   .50    .00010   1
  355     355    9583.    7.0    65.0   .0400    .150    .350    .150    .250   4.80   .50    .00010   1
  363     363    9583.    7.0    33.0   .0550    .150    .350    .150    .250   4.80   .50    .00010   1
  366     366   26706.   81.0    45.0   .0550    .150    .500    .150    .350   4.80   .50    .00010   1
  367     367    9047.   23.0    65.0   .0450    .150    .500    .150    .350   4.80   .50    .00010   1
  373     373    4140.   38.0     6.0   .0200    .150    .400    .150    .350   4.80   .50    .00010   1
  241     241   45665.  343.0    45.0   .0200    .150    .400    .150    .450   3.90   .50    .00024   1
  346     346   21083.   71.0    40.0   .0600    .150    .450    .150    .350   3.90   .50    .00024   1
  345     345   20528.   78.0    50.0   .0600    .150    .450    .150    .350   4.80   .50    .00010   1
  349     349    1951.   13.0    15.0   .0200    .150    .450    .150    .350   4.80   .50    .00010   1
  347     347   11476.   55.0    65.0   .0500    .150    .400    .150    .350   4.80   .50    .00010   1
  371     371   12050.   83.0    50.0   .0500    .150    .450    .150    .250   4.80   .50    .00010   1
  338     338   14259.   73.0     8.0   .0250    .150    .350    .150    .250   3.90   .50    .00024   1
  333     333    6300.    5.0    60.0   .0400    .200    .450    .150    .550   3.50   .20    .00100   1
  334     334    6300.    5.0    60.0   .0400    .150    .350    .150    .250   3.50   .20    .00100   1
  240     240    2500.   46.0    25.0   .1100    .150    .450    .150    .600   3.90   .50    .00024   1
  318     318   20255.  157.0    20.0   .0300    .150    .550    .150    .500   3.90   .50    .00024   1
  335     335    8868.   36.0    45.0   .0500    .150    .450    .150    .450   3.90   .50    .00024   1
  336    1329   10002.   31.0    45.0   .0300    .150    .450    .150    .450   3.90   .50    .00024   1
  337     337   14520.   50.0    50.0   .0350    .150    .450    .150    .450   3.90   .50    .00024   1
  312     312    7094.   12.0    70.0   .0400    .150    .450    .150    .250   3.90   .50    .00024   1
  315     315    8712.   28.0    45.0   .0400    .150    .450    .150    .450   3.90   .50    .00024   1
  316     316   12777.   43.0    45.0   .0300    .150    .450    .150    .450   3.90   .50    .00024   1
  358     358    4084.   12.0    45.0   .0300    .150    .450    .150    .450   3.90   .50    .00024   1
  320     320   22099.  161.0    50.0   .0250    .250    .450    .250    .600   3.90   .50    .00024   1
 1323    1323    2406.    9.0    50.0   .0080    .150    .450    .150    .450   3.90   .50    .00024   1
  321     321   47509.   25.0    60.0   .0450    .150    .450    .150    .350   3.90   .50    .00024   1
  319     319   43000.  164.0    70.0   .0250    .150    .400    .150    .250   3.90   .50    .00024   1
  370     370   14400.   41.0    70.0   .0250    .150    .400    .150    .250   3.90   .50    .00024   1
  233     233   42776.  281.0    25.0   .0500    .150    .500    .150    .500   3.90   .50    .00024   1
  235     235   20400.  187.0    20.0   .1100    .150    .500    .150    .500   3.90   .50    .00024   1
  231     231   58487.  390.0    55.0   .0200    .150    .400    .150    .250   3.90   .50    .00024   1
0TOTAL NUMBER OF SUBCATCHMENTS, 314
0TOTAL TRIBUTARY AREA (ACRES),  86852.00
1


 model sbc_ltd.swi
 10-year model
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 *** CONTINUITY CHECK FOR SUBCATCHMEMT ROUTING IN UDSWM386 MODEL ***

 WATERSHED AREA (ACRES)                           86852.000

 TOTAL RAINFALL (INCHES)                              2.697

 TOTAL INFILTRATION (INCHES)                          2.188

 TOTAL WATERSHED OUTFLOW (INCHES)                      .483

 TOTAL SURFACE STORAGE AT END OF STORM (INCHES)        .027

 ERROR IN CONTINUITY, PERCENTAGE OF RAINFALL          -.031
1

 model sbc_1td.swi
 10-year model


                                                     WIDTH              INVERT   SIDE SLOPES         OVERBANK/SURCHARGE
 GUTTER      GUTTER        NDP        NP            OR DIAM    LENGTH    SLOPE   HORIZ TO VERT   MANNING      DEPTH       JK
 NUMBER    CONNECTION                                 (FT)      (FT)    (FT/FT)    L      R         N          (FT)

  226        224         0          1      CHANNEL       20.0    3740.     .1337     4.0   4.0      .040       15.00        0
  225        224         0          1      CHANNEL        5.0    1862.     .0600    10.0  10.0      .045       15.00        0
  224        222         0          1      CHANNEL        4.0    4220.     .1300     3.0   3.0      .055       15.00        0
  223        222         0          1      CHANNEL       10.0    5960.     .1406    10.0  10.0      .040       15.00        0
  222        218         0          1      CHANNEL        5.0    2280.     .1000     4.0   4.0      .055       15.00        0
  221        218         0          1      CHANNEL        5.0    6520.     .1992     5.0   5.0      .055       15.00        0
  220        219         0          1      CHANNEL        8.0    7580.     .2107     7.0   7.0      .050       15.00        0
  218        219         0          1      CHANNEL        5.0    1660.     .0900     4.0   4.0      .055       15.00        0
  219        215         0          1      CHANNEL       10.0    2531.     .1000     7.0   7.0      .055       15.00        0
  216        215         0          1      CHANNEL       20.0    8160.     .1875    10.0  10.0      .055       15.00        0
  214        212         0          1      CHANNEL       10.0    6880.     .1727    10.0  10.0      .055       15.00        0
  213        212         0          1      CHANNEL       10.0    5900.     .1268    10.0  10.0      .055       15.00        0
  212        211         0          1      CHANNEL       15.0    6100.     .1511     7.0   7.0      .060       15.00        0
  215        211         0          4      CHANNEL       10.0    5210.     .0600     4.0   4.0      .050        2.00        0
                                             OVERFLOW    50.0    5210.     .0600     6.0   6.0      .055       25.00
  217        215         0          1      CHANNEL       20.0    4860.     .3560     5.0   5.0      .040       15.00        0
  211        207         0          4      CHANNEL        8.0    2390.     .0500     3.0   3.0      .050        2.00        0
                                             OVERFLOW    25.0    2390.     .0500     5.0   5.0      .055       25.00
  186        184         0          1      CHANNEL       10.0    4260.     .1002     9.0   9.0      .060       15.00        0
  185        184         0          1      CHANNEL        5.0    3720.     .0594     6.0   6.0      .060       15.00        0
  183        182         0          1      CHANNEL       10.0    8000.     .1050     6.0   6.0      .060       15.00        0
  181        180         0          1      CHANNEL        5.0    6640.     .1583     7.0   7.0      .060       15.00        0
  184        182         0          1      CHANNEL       15.0    3540.     .1158     8.0   8.0      .055       15.00        0
  182        180         0          4      CHANNEL       15.0    4600.     .0720     4.0   4.0      .050        2.50        0
                                             OVERFLOW   100.0    4370.     .0758    15.0  15.0      .055       20.00
  180        176         0          4      CHANNEL       10.0    4520.     .0507     4.0   4.0      .045        3.00        0
                                             OVERFLOW    35.0    4294.     .0534     3.0   3.0      .060       20.00
  204        201         0          1      CHANNEL       15.0    6720.     .0911     6.0   6.0      .050       15.00        0
  203        201         0          1      CHANNEL        5.0    3500.     .2286     5.0   5.0      .055       15.00        0
  201        198         0          4      CHANNEL       15.0    7700.     .0835     4.0   4.0      .050        3.00        0
                                             OVERFLOW    50.0    7315.     .0879     7.0   7.0      .060       20.00
  200        198         0          1      CHANNEL        5.0    7220.     .1722     7.0   7.0      .055       15.00        0
  202        198         0          1      CHANNEL        5.0    3820.     .1971     5.0   5.0      .060       15.00        0
  198        194         0          4      CHANNEL       25.0    7220.     .0370     4.0   4.0      .050        3.00        0
                                             OVERFLOW   200.0    6860.     .0389     7.0   7.0      .060       20.00
  199        194         0          1      CHANNEL        5.0    9020.     .1233     6.0   6.0      .060       15.00        0
  196        194         0          1      CHANNEL        5.0    7320.     .1243     5.0   5.0      .060       15.00        0
  195        194         0          1      CHANNEL       10.0    4760.     .1513     5.0   5.0      .060       15.00        0
  194        192         0          4      CHANNEL       20.0    7560.     .0921     4.0   4.0      .055        3.00        0
                                             OVERFLOW    80.0    7182.     .0969    10.0  10.0      .060       20.00
  208        207         0          1      CHANNEL       10.0    4260.     .2230     8.0   8.0      .060       15.00        0
  207        205         0          4      CHANNEL       25.0    5000.     .0150     4.0   4.0      .040        2.00        0
                                             OVERFLOW   200.0    5000.     .0150    10.0  10.0      .050       25.00
  206        205         0          1      CHANNEL       25.0    3860.     .2591     5.0   5.0      .040       15.00        0
  205        192         0          4      CHANNEL       20.0    4900.     .0349     4.0   4.0      .045        3.00        0
                                             OVERFLOW   100.0    4900.     .0349     8.0   8.0      .055       25.00
  192        187         0          4      CHANNEL       32.0    1540.     .0120     4.0   4.0      .040        3.00        0
                                             OVERFLOW   250.0    1540.     .0120    20.0  20.0      .050       25.00
  193        187         0          1      CHANNEL       25.0    4480.     .1897     4.0   4.0      .040       15.00        0
  187        172         0          4      CHANNEL       32.0    7388.     .0100     4.0   4.0      .040        3.00        0
                                             OVERFLOW   250.0    7388.     .0100    20.0  20.0      .050       25.00
  178        177         0          1      CHANNEL        5.0    6500.     .1186     8.0   8.0      .060       15.00        0
  177        175         0          1      CHANNEL        8.0    6020.     .0862     7.0   7.0      .055       15.00        0
  179        176         0          1      CHANNEL       20.0    3860.     .2383     5.0   5.0      .045       15.00        0
  176        175         0          4      CHANNEL       20.0    7520.     .0386     4.0   4.0      .045        3.00        0
                                             OVERFLOW   100.0    7144.     .0406     5.0   5.0      .060       20.00
  174        173         0          1      CHANNEL        5.0    4060.     .1421     6.0   6.0      .055       15.00        0
  175        173         0          4      CHANNEL       30.0    1900.     .0353     4.0   4.0      .035        3.00        0
                                             OVERFLOW   150.0    1805.     .0372    15.0  15.0      .045       20.00
  173        172         0          4      CHANNEL       25.0    5760.     .0587     4.0   4.0      .035        3.00        0
                                             OVERFLOW   200.0    5472.     .0618    15.0  15.0      .045       20.00
  172        157         0          4      CHANNEL       25.0    1860.     .0100     3.0   3.0      .045        3.00        0
                                             OVERFLOW    75.0    1860.     .0100     5.0   5.0      .050       25.00
  168        165         0          1      CHANNEL        5.0    3620.     .1740     7.0   7.0      .060       15.00        0
  169        165         0          1      CHANNEL        5.0    3140.     .1720     7.0   7.0      .060       15.00        0
  165        166         0          1      CHANNEL       10.0    6920.     .1026     5.0   5.0      .060       15.00        0
  167        166         0          1      CHANNEL        5.0    5360.     .1940     6.0   6.0      .060       15.00        0
  166        163         0          1      CHANNEL       15.0    1040.     .0673    10.0  10.0      .055       15.00        0
  164        163         0          1      CHANNEL       10.0    4000.     .1263     8.0   8.0      .050       15.00        0
  163        157         0          1      CHANNEL       25.0    2640.     .0568     5.0   5.0      .050       15.00        0
  170        157         0          1      CHANNEL        5.0    4840.     .1543     5.0   5.0      .055       15.00        0
  171        157         0          1      CHANNEL        5.0    4420.     .1837     7.0   7.0      .055       15.00        0
  157        156         0          4      CHANNEL       25.0    1660.     .0220     3.0   3.0      .045        3.00        0
                                             OVERFLOW    75.0    1660.     .0220     4.0   4.0      .050       25.00
  161        160         0          1      CHANNEL        5.0    4380.     .1667     5.0   5.0      .060       15.00        0
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  162      160      0      1   CHANNEL        5.0    5800.   .2121    5.0   5.0    .060    15.00    0
  160      158      0      1   CHANNEL       10.0    3360.   .0908   10.0  10.0    .055    15.00    0
  159      158      0      1   CHANNEL       10.0    6380.   .1293    6.0   6.0    .060    15.00    0
  158      156      0      1   CHANNEL       20.0    5700.   .0619    5.0   5.0    .050    15.00    0
  156      154      0      4   CHANNEL       35.0    4980.   .0190    3.0   3.0    .050     3.00    0
                                 OVERFLOW   100.0    4980.   .0190    3.0   3.0    .055    25.00
  155      154      0      1   CHANNEL       12.0    2180.   .2683    4.0   4.0    .050    15.00    0
  153      152      0      1   CHANNEL       12.0    4380.   .1530    4.0   4.0    .060    15.00    0
  154      152      0      4   CHANNEL       35.0    2880.   .0200    3.0   3.0    .050     3.00    0
                                 OVERFLOW   100.0    2880.   .0200    3.0   3.0    .055    25.00
  152      149      0      4   CHANNEL       30.0    6980.   .0150    4.0   4.0    .045     3.00    0
                                 OVERFLOW   200.0    6980.   .0150    5.0   5.0    .050    25.00
  150      149      0      1   CHANNEL        5.0    2780.   .1691    4.0   4.0    .055    15.00    0
  151      149      0      1   CHANNEL        6.0    4120.   .1286    4.0   4.0    .055    15.00    0
  149      139      0      4   CHANNEL       35.0    3220.   .0140    4.0   4.0    .045     3.00    0
                                 OVERFLOW   300.0    3220.   .0140    5.0   5.0    .050    25.00
  147      146      0      1   CHANNEL        8.0    5600.   .1625    6.0   6.0    .060    15.00    0
  148      146      0      1   CHANNEL        8.0    2720.   .1048    8.0   8.0    .060    15.00    0
  146      142      0      1   CHANNEL       10.0    5540.   .0727    8.0   8.0    .055    15.00    0
  144      143      0      1   CHANNEL        5.0    2200.   .1568    8.0   8.0    .060    15.00    0
  145      143      0      1   CHANNEL        3.0    2160.   .1574    5.0   5.0    .060    15.00    0
  143      142      0      1   CHANNEL        8.0    4840.   .1184    5.0   5.0    .060    15.00    0
  142      140      0      1   CHANNEL       10.0    2080.   .0514    8.0   5.0    .055    15.00    0
  141      140      0      1   CHANNEL        5.0    3800.   .1237    5.0   5.0    .060    15.00    0
  140      139      0      1   CHANNEL       15.0    4320.   .0505    8.0   7.0    .055    15.00    0
  138      137      0      1   CHANNEL       10.0    5440.   .0432   10.0  10.0    .055    15.00    0
  139      137      0      4   CHANNEL       30.0    1880.   .0160    4.0   4.0    .045     3.00    0
                                 OVERFLOW   200.0    1880.   .0160    5.0   5.0    .050    25.00
  137      129      0      4   CHANNEL       30.0    2009.   .0130    4.0   4.0    .040     3.00    0
                                 OVERFLOW   200.0    2009.   .0130    5.0   5.0    .050    25.00
  135      134      0      1   CHANNEL        5.0    4080.   .1716    5.0   5.0    .060    15.00    0
  136      134      0      1   CHANNEL        5.0    3000.   .1433    6.0   6.0    .060    15.00    0
  134      133      0      1   CHANNEL       10.0   10020.   .0868    5.0   5.0    .055    15.00    0
  133      130      0      1   CHANNEL       15.0    7720.   .0505    5.0   5.0    .055    15.00    0
  131      130      0      4   CHANNEL       15.0    4860.   .1008    3.0   3.0    .055     3.00    0
                                 OVERFLOW   100.0    4617.   .1061   10.0  10.0    .060    20.00
  132      130      0      1   CHANNEL        8.0    4560.   .0789    6.0   6.0    .060    15.00    0
  130      129      0      1   CHANNEL       25.0    3360.   .0363    7.0   7.0    .055    15.00    0
  129       96      0      4   CHANNEL       30.0    3520.   .0160    3.5   3.5    .055     4.00    0
                                 OVERFLOW   100.0    3520.   .0160    4.0   4.0    .060    25.00
  125      124      0      1   CHANNEL        5.0    3800.   .1842    8.0   8.0    .055    15.00    0
  126      124      0      1   CHANNEL        5.0    3420.   .1871    6.0   6.0    .060    15.00    0
  124      122      0      1   CHANNEL       10.0    7520.   .0535    8.0   8.0    .055    15.00    0
  127      123      0      1   CHANNEL       10.0    8000.   .1056   10.0  10.0    .055    15.00    0
  128      123      0      1   CHANNEL       10.0    8660.   .1236   15.0  15.0    .055    15.00    0
  123      122      0      1   CHANNEL       15.0    4160.   .0317   15.0  15.0    .055    15.00    0
  122       96      0      1   CHANNEL       20.0    9440.   .0607    5.0   5.0    .060    15.00    0
   96       95      0      4   CHANNEL       25.0    6320.   .0170    2.0   2.0    .055     4.00    0
                                 OVERFLOW    50.0    6320.   .0170    2.0   2.0    .060    25.00
  116       95      0      4   CHANNEL        5.0    9520.   .0772    3.0   3.0    .050     2.50    0
                                 OVERFLOW    70.0    9044.   .0813    8.0   8.0    .055    20.00
   95       94      0      4   CHANNEL       30.0    4000.   .0120    3.0   3.0    .040     3.00    0
                                 OVERFLOW   150.0    4000.   .0120    5.0   5.0    .050    25.00
   85       84      0      1   CHANNEL        5.0    2220.   .0396    4.0   4.0    .060    15.00    0
   86       84      0      1   CHANNEL        8.0    5880.   .1259    4.0   4.0    .060    15.00    0
   84       82      0      1   CHANNEL       10.0    2720.   .0890   10.0  10.0    .060    15.00    0
   83       62      0      1   CHANNEL       10.0    2380.   .0450   12.0  12.0    .060    15.00    0
   82       80      0      1   CHANNEL       20.0    2220.   .0396   12.0  12.0    .060    15.00    0
   87       81      0      1   CHANNEL       10.0    8040.   .0796    5.0   5.0    .065    15.00    0
   81       80      0      1   CHANNEL       15.0    6220.   .0691    7.0   7.0    .065    15.00    0
   80       79      0      1   CHANNEL       20.0    6380.   .1993   10.0  10.0    .065    15.00    0
  121       79      0      4   CHANNEL        8.0    4700.   .0660    4.0   4.0    .055     2.50    0
                                 OVERFLOW    60.0    4465.   .0695   12.0  12.0    .057    20.00
   79       75      0      1   CHANNEL       25.0    8020.   .0212   10.0  10.0    .060    15.00    0
   78       75      0      1   CHANNEL        8.0    3780.   .0688   20.0  20.0    .060    15.00    0
   75       77      0      1   CHANNEL       25.0    1600.   .0188    3.0   5.0    .060    15.00    0
   77       74      0      1   CHANNEL       40.0    2020.   .0198    3.0   3.0    .060    15.00    0
   76       74      0      4   CHANNEL       10.0    6420.   .0779    4.0   4.0    .050     2.00    0
                                 OVERFLOW    60.0    6420.   .0779    8.0   8.0    .055    20.00
   74       59      0      4   CHANNEL       30.0    4700.   .0130    4.0   4.0    .050     4.00    0
                                 OVERFLOW    75.0    4700.   .0130    4.0   3.0    .055    25.00
   89       88      0      1   CHANNEL        8.0    4240.   .0217   10.0  10.0    .055    15.00    0
   93       88      0      1   CHANNEL        5.0    2440.   .0984   10.0  10.0    .055    15.00    0
   88       77      0      4   CHANNEL       11.0    7200.   .1380   10.0  10.0    .060     3.00    0
                                 OVERFLOW   100.0    7200.   .1380   50.0  50.0    .045    20.00
  120      119      0      4   CHANNEL        5.0    3980.   .0879    3.0   3.0    .050     3.00    0
                                 OVERFLOW   200.0    3781.   .0925   10.0  10.0    .055    20.00
  118      119      0      4   CHANNEL        5.0    8220.   .1095    3.0   3.0    .050     3.00    0
                                 OVERFLOW   150.0    7809.   .1153   10.0  10.0    .055    20.00
  119      104      0      4   CHANNEL        5.0    1300.   .0400    3.0   3.0    .050     3.00    0
                                 OVERFLOW   150.0    1235.   .0421   10.0  10.0    .055    20.00
  117      104      0      4   CHANNEL        5.0    6000.   .0587    3.0   3.0    .050     3.00    0
                                 OVERFLOW   100.0    5700.   .0618   10.0  10.0    .055    20.00
  104      103      0      4   CHANNEL       10.0    3440.   .0343    3.0   3.0    .045     3.00    0
                                 OVERFLOW   150.0    3268.   .0361   10.0  10.0    .050    20.00
  105      103      0      4   CHANNEL        5.0    4560.   .0811    3.0   3.0    .045     3.00    0
                                 OVERFLOW   100.0    4332.   .0854   10.0  10.0    .050    20.00
  106      102      0      4   CHANNEL        5.0    6380.   .0690    3.0   3.0    .045     3.00    0
                                 OVERFLOW    70.0    6061.   .0726   10.0  10.0    .050    20.00
  103      102      0      4   CHANNEL        8.0    1380.   .0362    4.0  40.0    .050     3.00    0
                                 OVERFLOW    68.0    1311.   .0381   25.0  25.0    .055    20.00
  102      101      0      4   CHANNEL       11.0    5220.   .0383    8.0   8.0    .055     3.00    0
                                 OVERFLOW   100.0    4959.   .0403    5.0   5.0    .060    20.00
  114      112      0      1   CHANNEL        5.0    4500.   .1467    5.0   5.0    .060     8.00    0
  115      112      0      1   CHANNEL        5.0    3240.   .1759    5.0   5.0    .060     8.00    0
  112      110      0      4   CHANNEL        5.0    3640.   .1745    3.0   3.0    .055     2.50    0
                                 OVERFLOW    40.0    3458.   .1837   10.0   8.0    .060    20.00
  113      110      0      4   CHANNEL        5.0    5060.   .1690    3.0   3.0    .055     3.00    0
                                 OVERFLOW    40.0    4807.   .1779   10.0  10.0    .060    20.00
  110      109      0      4   CHANNEL       11.0    4140.   .0531    4.0   4.0    .055     3.00    0
                                 OVERFLOW    60.0    3933.   .0559   50.0  50.0    .060    20.00
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   111       109         0         4     CHANNEL        5.0     5600.     .2348      3.0   3.0       .050        2.00        0
                                           OVERFLOW    20.0     5320.     .2472      6.0   6.0       .055       20.00
   108       107         0         4     CHANNEL        5.0     6240.     .1875      3.0   3.0       .050        2.00        0
                                           OVERFLOW    20.0     5928.     .1974      6.0   6.0       .055       20.00
   109       107         0         4     CHANNEL       11.0     2760.     .0525      4.0   4.0       .050        3.00        0
                                           OVERFLOW    60.0     2622.     .0553      6.0   6.0       .055       20.00
   107       101         0         4     CHANNEL       11.0     2720.     .0368      4.0   4.0       .050        3.00        0
                                           OVERFLOW    45.0     2584.     .0387      6.0   6.0       .055       20.00
   101        99         0         4     CHANNEL       11.0     1380.     .0268      4.0   4.0       .050        3.00        0
                                           OVERFLOW    50.0     1311.     .0282      5.0   5.0       .055       20.00
   100        99         0         4     CHANNEL        5.0     9980.     .1735      3.0   3.0       .050        2.00        0
                                           OVERFLOW    25.0     9481.     .1826      5.0   5.0       .055       20.00
    99        97         0         4     CHANNEL       11.0     1440.     .0299      4.0   4.0       .050        3.00        0
                                           OVERFLOW    50.0     1368.     .0315      5.0   5.0       .055       20.00
    98        97         0         4     CHANNEL        8.0     7000.     .1179      3.0   3.0       .050        2.00        0
                                           OVERFLOW    35.0     6650.     .1241      6.0   6.0       .055       20.00
    97        94         0         4     CHANNEL       11.0     5720.     .0332      4.0   4.0       .050        2.50        0
                                           OVERFLOW    50.0     5434.     .0349      4.0   4.0       .055       20.00
    94        74         0         4     CHANNEL       32.0     2560.     .0120      4.0   4.0       .040        3.50        0
                                           OVERFLOW   150.0     2560.     .0120      8.0   8.0       .050       25.00
    72        71         0         1     CHANNEL       10.0     4480.     .0808      5.0   5.0       .055       15.00        0
    73        71         0         1     CHANNEL       10.0     8000.     .0303      8.0   8.0       .055       15.00        0
    71        59         0         1     CHANNEL       12.0     4820.     .0664      5.0   5.0       .060       15.00        0
    59        46         0         4     CHANNEL       30.0     4020.     .0140      4.0   4.0       .050        4.00        0
                                           OVERFLOW    60.0     4020.     .0140      3.0   3.0       .055       25.00
    63        61         0         1     CHANNEL        9.0     6420.     .0779      5.0   5.0       .070       20.00        0
    64        61         0         1     CHANNEL        9.0     2020.     .0198      5.0   5.0       .070       20.00        0
    61        62         0         1     CHANNEL       12.0     7500.     .0633      5.0   5.0       .070       20.00        0
    60        46         0         1     CHANNEL       12.0     4080.     .1262      5.0   5.0       .060       20.00        0
    46        42         0         4     CHANNEL       25.0     3220.     .0300      3.0   3.0       .055        5.00        0
                                           OVERFLOW    50.0     3220.     .0300      4.0   4.0       .060       25.00
    66        65         0         1     CHANNEL        9.0     3060.     .2026      4.0   4.0       .060       15.00        0
    67        65         0         4     CHANNEL       10.0     6620.     .0853      3.0   3.0       .050        4.00        0
                                           OVERFLOW    45.0     6289.     .0898      3.0   3.0       .060       25.00
    65        62         0         4     CHANNEL       15.0     3960.     .0088      3.0   3.0       .050        4.00        0
                                           OVERFLOW    50.0     3762.     .0093      3.0   3.0       .060       25.00
    62        42         0         1     CHANNEL       12.0     1400.     .2629      5.0   5.0       .070       20.00        0
    69        68         0         1     CHANNEL       10.0     3740.     .1056      6.0   6.0       .055       15.00        0
    70        68         0         1     CHANNEL       12.0     6960.     .0912      6.0   6.0       .055       15.00        0
    68        42         0         1     CHANNEL       12.0     2120.     .1203      5.0   5.0       .060       15.00        0
    41        40         0         1     CHANNEL       12.0     3100.     .2423      5.0   5.0       .060       20.00        0
    42        40         0         4     CHANNEL       20.0     7580.     .0500      3.0   3.0       .055        4.00        0
                                           OVERFLOW    50.0     7580.     .0500      2.0   2.0       .060       25.00
    40        16         0         4     CHANNEL       20.0     3000.     .0330      3.0   3.0       .055        4.00        0
                                           OVERFLOW    50.0     3000.     .0330      2.0   2.0       .060       25.00
    20        18         0         1     CHANNEL       10.0     5340.     .0534      8.0   8.0       .050       15.00        0
    18        17         0         4     CHANNEL       11.0     7600.     .0605      3.0   3.0       .050        3.00        0
                                           OVERFLOW    40.0     7220.     .0637      5.0   5.0       .055       20.00
    21        17         0         1     CHANNEL       10.0     6960.     .1042      5.0   5.0       .060       15.00        0
    17        16         0         4     CHANNEL       11.0     1000.     .0493     10.0  10.0       .040        3.00        0
                                           OVERFLOW    40.0     1000.     .0493      8.0   8.0       .055       20.00
    14        15         0         1     CHANNEL       15.0     3080.     .2662      3.0   3.0       .060       15.00        0
    15         8         0         3                     .0        1.     .0010       .0    .0       .001       10.00        0
    16        15         0         3                     .0        1.     .0010       .0    .0       .001       10.00        0
     8       397         0         3                     .0        1.     .0010       .0    .0       .001       10.00        0
   397         6        14         2     PIPE            .1        1.     .0050       .0    .0       .013         .10        0
                  RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                        .0        .0     207.0   170.0     415.0   476.0     833.0  1330.0     1254.0  2417.0     1677.0  3678.0
                    2104.0    5078.0    2535.0  6591.0    2968.0  8200.0    3405.0  9896.0     3847.0 12853.0     4292.0 16870.0
                    6098.0   37861.0    7880.0 91713.0
    38        37         0         1     CHANNEL       12.0     5060.     .1146     15.0  15.0       .050       15.00        0
    39        37         0         1     CHANNEL       10.0     5140.     .0807     10.0  10.0       .050       20.00        0
    37        23         0         4     CHANNEL       11.0     8160.     .0386      4.0   4.0       .050        3.00        0
                                           OVERFLOW    60.0     7752.     .0406     25.0  25.0       .055       20.00
    35        34         0         1     CHANNEL       10.0     3140.     .0930     10.0  10.0       .050       15.00        0
    36        34         0         1     CHANNEL       12.0     5340.     .0549     15.0  15.0       .050       15.00        0
    34        23         0         4     CHANNEL       11.0     6840.     .0450      4.0   4.0       .050        3.00        0
                                           OVERFLOW    50.0     6498.     .0474     25.0  25.0       .055       20.00
    32        31         0         1     CHANNEL        8.0     3260.     .0883      8.0   8.0       .055       15.00        0
    33        31         0         1     CHANNEL        8.0     5180.     .0788      8.0   8.0       .055       15.00        0
    31        23         0         1     CHANNEL       12.0     2720.     .0393     10.0  10.0       .055       15.00        0
    23        22         0         4     CHANNEL       11.0     4920.     .0315      3.0   3.0       .050        3.00        0
                                           OVERFLOW    50.0     4674.     .0332     10.0  10.0       .055       20.00
    29        28         0         1     CHANNEL        5.0     3060.     .1471      6.0   6.0       .055       15.00        0
    30        28         0         1     CHANNEL       12.0     5780.     .0484     15.0  15.0       .050       15.00        0
    27        26         0         1     CHANNEL       10.0     2540.     .1693     10.0  10.0       .040       15.00        0
    28        26         0         4     CHANNEL       11.0     2520.     .0595     10.0  10.0       .040        3.00        0
                                           OVERFLOW    80.0     2394.     .0626     25.0  25.0       .045       15.00
    25        24         0         1     CHANNEL        6.0     5920.     .1309      8.0   8.0       .050       15.00        0
    26        24         0         4     CHANNEL       12.0     1860.     .0242      4.0   4.0       .050        3.00        0
                                           OVERFLOW    80.0     1767.     .0255     10.0  10.0       .055       15.00
    24        22         0         4     CHANNEL       12.0     1740.     .0287      4.0   4.0       .050        3.00        0
                                           OVERFLOW   100.0     1653.     .0302     10.0  10.0       .055       20.00
    22         8         0         4     CHANNEL       11.0     3600.     .0658      3.0   3.0       .050        3.00        0
                                           OVERFLOW    40.0     3600.     .0658      6.0   6.0       .055       20.00
     9         7         0         4     CHANNEL        3.0    10320.     .1556      3.0   3.0       .060        2.00        0
                                           OVERFLOW    20.0     9804.     .1638      2.0   2.0       .080       25.00
    10         7         0         1     CHANNEL       15.0     3760.     .1293      3.0   3.0       .040       15.00        0
     7         5         0         4     CHANNEL        5.0     4940.     .0656      2.0   2.0       .060        2.50        0
                                           OVERFLOW    25.0     4693.     .0691      2.0   2.0       .080       20.00
     3         2         0         1     CHANNEL       25.0    11000.     .0682      4.0   4.0       .040       15.00        0
     4         2         0         1     CHANNEL       25.0    12780.     .1033      4.0   4.0       .040       15.00        0
     2         1         0         4     CHANNEL        8.0     7240.     .0631      2.0   2.0       .070        3.00        0
                                           OVERFLOW    30.0     6878.     .0664      2.0   2.0       .080       20.00
     6         5         0         4     CHANNEL       35.0     4840.     .0340      2.0   2.0       .055        4.00        0
                                           OVERFLOW    60.0     4840.     .0340      2.0   2.0       .065       25.00
     5         1         0         4     CHANNEL       30.0     4960.     .0240      2.0   2.0       .055        4.00        0
                                           OVERFLOW    55.0     4960.     .0240      2.0   2.0       .065       25.00
     1       245         0         4     CHANNEL       30.0    10240.     .0240      2.0   2.0       .055        4.00        0
                                           OVERFLOW    55.0    10240.     .0240      2.0   2.0       .065       25.00
    11        13         0         1     CHANNEL       12.0     3000.     .1200      3.0   3.0       .040       15.00        0
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    12      13       0       1     CHANNEL       12.0    4180.     .1340     3.0   3.0      .040     15.00       0
    13       5       0       4     CHANNEL       15.0    5240.     .1202     4.0   4.0      .040      5.00       0
                                     OVERFLOW   100.0    4978.     .1265    40.0  40.0      .045     20.00
   248     250       0       4     CHANNEL       25.0    9340.     .0931     4.0   4.0      .060      5.00       0
                                     OVERFLOW   100.0    8873.     .0980    40.0  40.0      .080     20.00
   249     250       0       4     CHANNEL       20.0    3940.     .0964     4.0   4.0      .060      5.00       0
                                     OVERFLOW    80.0    3743.     .1015    40.0  40.0      .080     20.00
   247     246       0       4     CHANNEL       25.0    8120.     .0924     4.0   4.0      .060      5.00       0
                                     OVERFLOW   100.0    7714.     .0973    40.0  40.0      .080     20.00
   250     246       0       4     CHANNEL       25.0    2060.     .0485     4.0   4.0      .060      5.00       0
                                     OVERFLOW   100.0    1957.     .0511    40.0  40.0      .080     20.00
   246     245       0       4     CHANNEL       25.0    4660.     .0676     4.0   4.0      .060      5.00       0
                                     OVERFLOW   100.0    4427.     .0712    40.0  40.0      .080     20.00
   244      52       0       4     CHANNEL       25.0    8700.     .0989     4.0   4.0      .070      5.00       0
                                     OVERFLOW   100.0    8265.     .1041    40.0  40.0      .080     20.00
   245      52       0       4     CHANNEL       30.0    3060.     .0300     3.0   3.0      .070      4.00       0
                                     OVERFLOW    60.0    3060.     .0300     2.0   2.0      .080     20.00
    54      53       0       1     CHANNEL        5.0    4000.     .1500     3.0   3.0      .060     15.00       0
    55      53       0       1     CHANNEL        5.0    5500.     .1382     3.0   3.0      .060     15.00       0
    53      52       0       1     CHANNEL        5.0    1200.     .1083     3.0   3.0      .060     15.00       0
    51      50       0       4     CHANNEL        5.0    5200.     .1327     4.0   4.0      .060      5.00       0
                                     OVERFLOW   100.0    4940.     .1397    40.0  40.0      .080     20.00
    52      50       0       4     CHANNEL       35.0    9160.     .0218     3.0   3.0      .055      4.00       0
                                     OVERFLOW    65.0    9160.     .0218     2.0   2.0      .065     25.00
    50      48       0       4     CHANNEL       40.0    3400.     .0294     5.0   5.0      .060      4.00       0
                                     OVERFLOW   150.0    3400.     .0294    75.0  75.0      .080     25.00
    57      56       0       4     CHANNEL       25.0    8400.     .1262     4.0   4.0      .060      5.00       0
                                     OVERFLOW   100.0    7980.     .1328    40.0  40.0      .080     20.00
    58      56       0       1     CHANNEL        5.0    2200.     .1636     3.0   3.0      .060     15.00       0
    56      50       0       4     CHANNEL       25.0   10000.     .0930     4.0   4.0      .070      5.00       0
                                     OVERFLOW   100.0    9500.     .0979    40.0  40.0      .080     20.00
    49      48       0       1     CHANNEL       12.0    3200.     .2594     3.0   3.0      .060      8.00       0
    48    1626       0       4     CHANNEL       30.0    4700.     .0133     2.0   2.0      .070      5.00       0
                                     OVERFLOW   200.0    4700.     .0133     2.0   2.0      .085     25.00
  1238    1927       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1927     238       0       4     CHANNEL       15.0     964.     .0012     3.5   3.5      .045      4.00       0
                                     OVERFLOW    70.0     964.     .0012     7.5   5.0      .055     20.00
  1295     295       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
   295    1296      10       2     PIPE            .1       1.     .0010      .0    .0      .030       .10       0
                RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                    .0      .0     8.3      .5    17.8     1.0    28.1    10.5    39.4    18.2    52.5    23.5
                  68.3   278.0    86.7  1321.5   107.1  5035.0   150.0 10000.0
  1296     296       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
   296    1382       6       3                     .0       1.     .0010      .0    .0      .001     10.00    1383
                DIVERSION TO GUTTER NUMBER1383 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0    24.0      .1   278.0   250.0  1321.0  1290.0  5035.0  5000.0 10000.0  9964.0
  1382    1381       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
   384    1820       0       5     PIPE           3.0    4047.     .0176      .0    .0      .020      3.00       0
                                     OVERFLOW     1.0    4047.     .0176    20.0  20.0      .020     50.00
  1820     383       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1383    1820       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
   383    1405       8       3                     .0       1.     .0010      .0    .0      .001     10.00    1360
                DIVERSION TO GUTTER NUMBER1360 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0   150.0     1.0   223.0    23.0   285.0    75.0   426.0   201.0  1592.0  1342.0
                3953.0  3653.0 10000.0  9680.0
  1405    1381       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1381     382       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
   382     381       0       5     PIPE           7.5    1142.     .0020      .0    .0      .015      7.50       0
                                     OVERFLOW     7.5    1142.     .0020    20.0  20.0      .015     50.00
   381    1926       4       3                     .0       1.     .0010      .0    .0      .001     10.00    1366
                DIVERSION TO GUTTER NUMBER1366 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0   150.0     1.0   342.0   182.0  2438.0  2050.0
   369    1821       0       4     CHANNEL         .5    1030.     .0089    12.0  12.0      .016       .50       0
                                     OVERFLOW    10.0    1030.     .0089    20.0  20.0      .020     10.00
  1926    1821       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1821     380       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
   380     379       0       1     CHANNEL        8.0     754.     .0040     1.5   1.5      .050     10.00       0
   379    1406       4       3                     .0       1.     .0010      .0    .0      .001     10.00    1367
                DIVERSION TO GUTTER NUMBER1367 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0   180.0      .1   629.0   354.0  3656.0  3293.0
  1406    1378       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1404    1378       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1378     378       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
   378    1925       5       3                     .0       1.     .0010      .0    .0      .001     10.00    1289
                DIVERSION TO GUTTER NUMBER1289 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0    90.0     1.0    95.0     5.0   363.0   253.0   528.0   390.0
  1925     377       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
   377     242       0       1     CHANNEL        8.0    2080.     .0040     1.5   1.5      .055     10.00       0
  1715    1716       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1716    1517       0       4     CHANNEL       10.0    3321.     .0032     8.0   8.0      .035       .50       0
                                     OVERFLOW    30.0    3321.     .0032    80.0  80.0      .035     15.00
  1515    1517       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1517    1522       0       4     CHANNEL        4.0     851.     .0035     8.0   8.0      .035       .50       0
                                     OVERFLOW    20.0     851.     .0035    60.0  60.0      .035     15.00
  1541    1542       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1542    1544       0       4     CHANNEL        5.0   10122.     .0260     4.0   4.0      .040      2.00       0
                                     OVERFLOW    30.0   10122.     .0260    80.0  80.0      .045     15.00
  1520    1521       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1525    1526       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1528    1428       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1428    1429       0       4     CHANNEL        4.0    1682.     .0131     2.0   2.0      .025      2.00       0
                                     OVERFLOW   400.0    1682.     .0131    40.0  40.0      .035     15.00
  1415    1416       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1550    1551       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1560    1561       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1561    1563       0       4     CHANNEL        3.0    2480.     .1940     4.0   4.0      .050      2.00       0
                                     OVERFLOW    25.0    2480.     .1940    50.0  50.0      .055     15.00
  1565    1566       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
  1566    1563       0       4     CHANNEL        3.0    2240.     .2140     4.0   4.0      .050      2.00       0
                                     OVERFLOW    25.0    2240.     .2140     6.0   6.0      .055     15.00
  1563    1551       0       3                     .0       1.     .0010      .0    .0      .001     10.00       0
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 1551      1553        0      4    CHANNEL        3.0    8900.     .0560     5.0   5.0      .040       2.00       0
                                     OVERFLOW    30.0    8900.     .0560    50.0  50.0      .045      10.00
 1570      1571        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1571      1557        0      1    CHANNEL        5.0    1200.     .2670    40.0  40.0      .055      10.00       0
 1556      1557        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1557      1553        0      4    CHANNEL        3.0    5620.     .0240     5.0   5.0      .040       2.00       0
                                     OVERFLOW    25.0    5620.     .0240    40.0  40.0      .045      15.00
 1553      1416        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1416      1429        0      4    CHANNEL        5.0    4085.     .0225     4.0   4.0      .050       2.00       0
                                     OVERFLOW    25.0    4085.     .0225    40.0  40.0      .055      15.00
 1429      1526        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1526      1532        0      4    CHANNEL,       2.0    1410.     .0136     2.0   2.0      .055       2.00       0
                                     OVERFLOW   400.0    1410.     .0136    40.0  40.0      .065      15.00
 1530      1531        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1545      1546        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1575      1576        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1576      1546        0      4    CHANNEL        2.0    3500.     .0229     5.0   5.0      .050       2.00       0
                                     OVERFLOW    30.0    3500.     .0229    50.0  50.0      .055      15.00
 1546      1531        0      4    CHANNEL        5.0    7763.     .0840     4.0   4.0      .050       2.00       0
                                     OVERFLOW    30.0    7763.     .0840    75.0  75.0      .055      15.00
 1531      1532        0      4    CHANNEL        5.0    5288.     .0872     4.0   4.0      .040       2.00       0
                                     OVERFLOW    30.0    5288.     .0872    80.0  80.0      .045      15.00
 1532      1537        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1537      1533        0      4    CHANNEL        2.0    1127.     .0035     2.0   2.0      .035       2.00       0
                                     OVERFLOW   400.0    1127.     .0035     5.0  40.0      .035      15.00
 1414      1534        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1534      1533        0      4    CHANNEL       10.0    1966.     .0080     5.0   5.0      .050       1.00       0
                                     OVERFLOW   400.0    1966.     .0080    50.0   3.0      .065      15.00
 1533      1521        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1521      1544        0      4    CHANNEL        4.0    2633.     .0093     2.0   2.0      .050       2.00       0
                                     OVERFLOW   500.0    2633.     .0093    25.0  25.0      .065      10.00
 1544      1548        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1548      1522        0      4    CHANNEL        4.0    1054.     .0038     8.0   8.0      .035        .50       0
                                     OVERFLOW   500.0    1054.     .0038    60.0  60.0      .035      15.00
 1522      1511        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1510      1511        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1511      1513        0      4    CHANNEL        4.0    3213.     .0057     2.0   2.0      .050       2.00       0
                                     OVERFLOW   512.0    3213.     .0057    50.0  50.0      .060      10.00
 1513      1514        8      3                    .0       1.     .0010      .0    .0      .001      10.00    1508
                  DIVERSION TO GUTTER NUMBER1508 - TOTAL Q VS DIVERTED Q IN CFS
                        .0        .0      50.0        .1     140.0      48.0     415.0   192.0     1791.0  1299.0     3930.0  3176.0
                    7762.0    6551.0   15011.0 13210.0
 1514      1442        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1442      1935        0      4    CHANNEL        2.0    2252.     .0097     4.0   4.0      .040       1.00       0
                                     OVERFLOW   300.0    2252.     .0097    80.0  80.0      .060      15.00
 1262      1916        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1916      1935        0      4    CHANNEL        2.0    1211.     .0046     5.0   3.0      .035       1.00       0
                                     OVERFLOW   400.0    1211.     .0046   100.0   3.0      .035      20.00
 1935       262        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
  262       263        0      4    CHANNEL        2.0     529.     .0058     5.0   3.0      .035       1.00       0
                                     OVERFLOW   500.0     529.     .0058   150.0   3.0      .035      20.00
  263      1905        8      3                    .0       1.     .0010      .0    .0      .001      10.00     266
                  DIVERSION TO GUTTER NUMBER 266 - TOTAL Q VS DIVERTED Q IN CFS
                        .0        .0     175.0     174.9     412.0     185.0     908.0   198.0     1902.0   212.0     3161.0   228.0
                    6477.0     233.0   13854.0     256.0
 1905       264        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
  264       265        0      4    CHANNEL        2.0    1138.     .0017     5.0   3.0      .035        .50       0
                                     OVERFLOW   600.0    1138.     .0017   150.0   3.0      .035      20.00
  265       269        8      3                    .0       1.     .0010      .0    .0      .001      10.00    1267
                  DIVERSION TO GUTTER NUMBER1267 - TOTAL Q VS DIVERTED Q IN CFS
                        .0        .0     170.0     169.9     227.0     195.0     710.0   516.0     1689.0  1249.0     2933.0  1956.0
                    6244.0    3358.0   13598.0    6585.0
  269      1294        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1294       294        0      4    CHANNEL        2.0    1043.     .0027     4.0   4.0      .025       1.00       0
                                     OVERFLOW   375.0    1043.     .0027    80.0   3.0      .035      15.00
  304       294        0      1    CHANNEL        8.0    2370.     .0060     5.0   5.0      .035      10.00       0
  299       303        0      4    CHANNEL         .5    3612.     .0400    12.0  12.0      .016        .50       0
                                     OVERFLOW    24.0    3612.     .0400    20.0  20.0      .020      10.00
  301       300        0      4    CHANNEL         .5    3743.     .0800    12.0  12.0      .016        .50       0
                                     OVERFLOW    24.0    3743.     .0800    20.0  20.0      .020      10.00
  300      1922        5      2    PIPE            .1       1.     .0010      .0    .0      .030        .10       0
                  RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                        .0        .0       5.4      10.0      28.7      11.0      36.6    32.0       39.3   468.0
 1922       303        0      4    CHANNEL         .5     899.     .0667    12.0  12.0      .016        .50       0
                                     OVERFLOW    10.0     899.     .0667    20.0  20.0      .020      10.00
  303       298        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
  298       297       11      2    PIPE            .1       1.     .0010      .0    .0      .030        .10       0
                  RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                        .0        .0        .1      15.0        .5      45.0       1.4    94.0        2.9   130.0        5.3   158.0
                       9.3     182.0      12.2     192.0      15.9     225.0      20.4   286.0       25.0   827.0
  297      1921        0      4    CHANNEL        6.0    5106.     .0250     3.0   3.0      .045       6.00       0
                                     OVERFLOW    50.0    6800.     .0188     3.0   3.0      .035      10.00
 1917      1921        0      4    CHANNEL        5.0    1894.     .0079     8.0   8.0      .035       1.00       0
                                     OVERFLOW    40.0    1894.     .0079    80.0  80.0      .035      15.00
 1921      1920        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
 1920       294        0      4    CHANNEL       18.0     785.     .0013     6.0   6.0      .035       6.00       0
                                     OVERFLOW   100.0     785.     .0013    12.0  12.0      .035      15.00
  294       280        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
  280      1293        6      3                    .0       1.     .0010      .0    .0      .001      10.00    1295
                  DIVERSION TO GUTTER NUMBER1295 - TOTAL Q VS DIVERTED Q IN CFS
                        .0        .0     295.0       1.0     370.0      42.0    1046.0   661.0     2827.0  2327.0     8734.0  8169.0
 1293       293        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
  293       267        0      5    PIPE           8.5     757.     .0020      .0    .0      .015       8.50       0
                                     OVERFLOW     8.5     757.     .0020      .0    .0      .015      20.00
 1267       267        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
  267       268        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
  268      1291        8      2    PIPE            .1       1.     .0010      .0    .0      .030        .10       0
                  RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                        .0        .0       1.4      81.0       5.0     267.0      10.4   465.0       16.9   632.0       25.0  1145.0
                      35.1    1888.0     140.0   10000.0
 1291       291        0      3                    .0       1.     .0010      .0    .0      .001      10.00       0
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   291      1290         6         3                   .0        1.    .0010       .0    .0       .001       10.00     1923
                         DIVERSION TO GUTTER NUMBER1923 - TOTAL Q VS DIVERTED Q IN CFS
                                .0        .0     515.0       1.0    1249.0     471.0     1956.0  1098.0     6585.0  5685.0    10000.0  9000.0
  1290       290         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
   290      1924         0         4   CHANNEL       30.0     1375.    .0017      4.0   4.0       .045        6.00        0
                                          OVERFLOW  100.0     1375.    .0017     20.0  20.0       .050       15.00
  1289      1924         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1924       289         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
   289       242         0         4   CHANNEL       30.0     1962.    .0017      4.0   4.0       .045        6.00        0
                                          OVERFLOW  100.0     1962.    .0017     20.0  20.0       .050       15.00
  1505      1506         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1410      1411         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1420      1421         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1435      1436         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1436      1438         0         4   CHANNEL        2.0     3730.    .0350      4.0   4.0       .050        3.00        0
                                          OVERFLOW   30.0     3730.    .0350     16.0  16.0       .055       15.00
  1430      1431         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1431      1438         0         4   CHANNEL        2.0     1670.    .0820      4.0   4.0       .040        1.00        0
                                          OVERFLOW   12.0     1670.    .0820     15.0  15.0       .045       15.00
  1438      1426         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1425      1426         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1426      1421         0         4   CHANNEL        5.0     2319.    .0190      8.0   8.0       .040        2.00        0
                                          OVERFLOW   40.0     2319.    .0190     75.0  75.0       .045       15.00
  1445      1446         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1446      1453         0         4   CHANNEL        2.0     6667.    .0606      3.0   3.0       .040        3.00        0
                                          OVERFLOW   25.0     6667.    .0606      6.0   6.0       .045       15.00
  1645      1646         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1646      1643         0         4   CHANNEL        5.0     5300.    .1450      4.0   4.0       .060        2.00        0
                                          OVERFLOW   25.0     5300.    .1450     15.0  15.0       .065       15.00
  1640      1641         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1641      1643         0         4   CHANNEL        2.0     5800.    .0160      3.0   3.0       .060        3.00        0
                                          OVERFLOW   25.0     5800.    .0160      8.0   8.0       .065       15.00
  1643      1631         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1630      1631         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1631      1628         0         4   CHANNEL       10.0     7611.    .0730      4.0   4.0       .040        3.00        0
                                          OVERFLOW   40.0     7611.    .0730     10.0  10.0       .045       15.00
  1625      1626         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1635      1636         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1636      1626         0         1   CHANNEL        2.0     4200.    .0840      8.0   8.0       .040       10.00        0
  1626      1628         0         4   CHANNEL       25.0     1908.    .0205      4.0   4.0       .070        2.00        0
                                          OVERFLOW  100.0     1908.    .0205     75.0  75.0       .075       15.00
  1628      1611         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1610      1611         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1611      1928         0         4   CHANNEL       30.0     4400.    .0290      4.0   4.0       .060        2.50        0
                                          OVERFLOW  150.0     4400.    .0290     75.0  75.0       .070       15.00
  1605      1606         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1665      1666         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1666      1606         0         4   CHANNEL        3.0     6900.    .2130      3.0   3.0       .050        2.00        0
                                          OVERFLOW   20.0     6900.    .2130      2.0   2.0       .055       10.00
  1606      1928         0         4   CHANNEL        5.0     5987.    .0812      4.0   4.0       .045        2.00        0
                                          OVERFLOW   25.0     5987.    .0812      3.0   3.0       .060       15.00
  1928      1601         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1600      1601         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1601      1603         0         4   CHANNEL       25.0     1264.    .0290      6.0   6.0       .060        2.50        0
                                          OVERFLOW   85.0     1264.    .0290     80.0  80.0       .070       15.00
  1710      1711         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1711      1712         0         4   CHANNEL        5.0     5430.    .0479      4.0   4.0       .035        1.00        0
                                          OVERFLOW   30.0     5430.    .0479      5.0   5.0       .035       15.00
  1615      1616         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1616      1623         0         4   CHANNEL        2.0     6409.    .0620      3.0   3.0       .040        3.00        0
                                          OVERFLOW   20.0     6409.    .0620      5.0   5.0       .045       15.00
  1660      1661         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1661      1651         0         4   CHANNEL        3.0     9600.    .1670      4.0   4.0       .060        3.00        0
                                          OVERFLOW   25.0     9600.    .1670      3.0   3.0       .065       15.00
  1650      1651         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1651      1653         0         4   CHANNEL        5.0     4100.    .0860      4.0   4.0       .050        3.00        0
                                          OVERFLOW   25.0     4100.    .0860      3.0   3.0       .055       15.00
  1655      1656         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1656      1653         0         4   CHANNEL        3.0    10800.    .1170      4.0   4.0       .050        3.00        0
                                          OVERFLOW   25.0    10800.    .1170      3.0   3.0       .055       15.00
  1653      1621         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1620      1621         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1621      1623         0         4   CHANNEL        5.0    10100.    .0320      5.0   5.0       .045        3.00        0
                                          OVERFLOW   35.0    10100.    .0320      2.0   2.0       .060       15.00
  1623      1624         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1705      1624         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1624      1712         0         4   CHANNEL        2.0     2490.    .0380      5.0   5.0       .050        2.00        0
                                          OVERFLOW   25.0     2490.    .0380      5.0   5.0       .050       10.00
  1712      1929         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1929      1603         0         4   CHANNEL       10.0     1172.    .0043     10.0  10.0       .035         .50        0
                                          OVERFLOW   20.0     1172.    .0043     40.0  40.0       .035       15.00
  1603      1451         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1450      1451         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1451      1453         0         4   CHANNEL       30.0     2963.    .0110      6.0   6.0       .060        2.50        0
                                          OVERFLOW  110.0     2963.    .0110     80.0  80.0       .070       15.00
  1453      1441         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1440      1441         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1441      1421         0         4   CHANNEL       30.0     3235.    .0078      4.0   4.0       .060        2.50        0
                                          OVERFLOW  110.0     3235.    .0078     75.0  75.0       .070       15.00
  1421      1423         0         4   CHANNEL       30.0      800.    .0120      4.0   4.0       .060        2.50        0
                                          OVERFLOW  120.0      800.    .0120     75.0  75.0       .090       15.00
  1423      1424         8         3                   .0        1.    .0010       .0    .0       .001       10.00     1528
                         DIVERSION TO GUTTER NUMBER1528 - TOTAL Q VS DIVERTED Q IN CFS
                                .0        .0    1000.0       1.0    2000.0     114.0     3100.0   335.0     4000.0   597.0     5683.0  1262.0
                           10000.0   2575.0   18600.0    5243.0
  1424      1411         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1411      1412         0         4   CHANNEL       30.0     3369.    .0084      4.0   4.0       .060        2.50        0
                                          OVERFLOW  160.0     3369.    .0084     75.0  75.0       .065       15.00
  1412      1413         0         3                   .0        1.    .0010       .0    .0       .001       10.00        0
  1413      1509         9         3                   .0        1.    .0010       .0    .0       .001       10.00     1414
                         DIVERSION TO GUTTER NUMBER1414 - TOTAL Q VS DIVERTED Q IN CFS
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                       .0        .0      500.0       1.0      999.0   125.0     1886.0   841.0     2765.0  1456.0     3403.0  1937.0
                   4421.0    2668.0     7425.0    5187.0    13357.0 10368.0
 1509       1800         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1490       1491         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1455       1456         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1938       1480         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1480       1481         0       4    CHANNEL         5.0    2400.     .0500     2.0   2.0      .040       2.00         0
                                        OVERFLOW     20.0    2400.     .0500    10.0  10.0      .045      10.00
 1481       1482         7       2    PIPE             .0       1.     .0010      .0    .0      .030        .10         0
                     RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                       .0        .0      308.0      18.0      624.0    76.0      947.0   179.0     1279.0   318.0     1618.0  1676.0
                   1965.0    4700.0
 1482       1456         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1456       1457         0       1    CHANNEL         2.0    4450.     .0363    80.0  80.0      .030      20.00         0
 1457       1491         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1491       1931         0       4    CHANNEL         5.0   10236.     .0090     4.0   4.0      .050       2.00         0
                                        OVERFLOW     25.0   10236.     .0090    60.0  60.0      .065      15.00
 1460       1461         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1461       1931         0       4    CHANNEL         3.0    2286.     .0280     4.0   4.0      .050       2.00         0
                                        OVERFLOW     20.0    2286.     .0280    24.0  24.0      .055      15.00
 1931       1933         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1933       1467         0       4    CHANNEL         5.0     403.     .0099     2.0   2.0      .020       2.00         0
                                        OVERFLOW     25.0     403.     .0099    10.0  10.0      .025      15.00
 1465       1932         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1932       1467         0       4    CHANNEL         4.0    1591.     .0289     8.0   8.0      .035        .50         0
                                        OVERFLOW     25.0    1591.     .0289     4.0   4.0      .035      15.00
 1467       1468         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1468       1800         0       4    CHANNEL         5.0    2357.     .0180     2.0   2.0      .020       2.00         0
                                        OVERFLOW     25.0    2357.     .0180    10.0  10.0      .025      15.00
 1800       1506         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1506       1507         0       4    CHANNEL        33.0    8099.     .0054     4.0   4.0      .060       2.50         0
                                        OVERFLOW    800.0    8099.     .0054    10.0  10.0      .065      15.00
 1508       1507         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1507       1512         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1512         44         0       4    CHANNEL        33.0    1367.     .0064     4.0   4.0      .060       2.50         0
                                        OVERFLOW    308.0    1367.     .0064    80.0  80.0      .065      15.00
 1500       1501         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1501         44         0       4    CHANNEL         5.0    8609.     .0212     2.0   2.0      .040       2.00         0
                                        OVERFLOW     20.0    8609.     .0212    10.0  10.0      .045      15.00
   44        261         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  261       1427         9       3                     .0       1.     .0010      .0    .0      .001      10.00      1262
                     DIVERSION TO GUTTER NUMBER1262 - TOTAL Q VS DIVERTED Q IN CFS
                       .0        .0      500.0       1.0      875.0    35.0     1920.0   315.0     2709.0   660.0     3916.0  1323.0
                   5586.0    2377.0     9768.0    5344.0    18394.0 11928.0
 1427        243         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  243        242         0       4    CHANNEL        65.0    2991.     .0112     2.0   2.0      .043       2.50         0
                                        OVERFLOW    650.0    2991.     .0112   100.0 100.0      .055      15.00
  242        241         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  241        240         0       4    CHANNEL        65.0    5732.     .0100     2.0   2.0      .043       3.00         0
                                        OVERFLOW   1200.0    5732.     .0100   200.0 200.0      .055      20.00
  240        238         0       4    CHANNEL        65.0    2861.     .0100     2.0   2.0      .050       3.00         0
                                        OVERFLOW   1200.0    2861.     .0100   200.0 200.0      .075      20.00
  238        237         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  237        251         5       3                     .0       1.     .0010      .0    .0      .001      10.00       389
                     DIVERSION TO GUTTER NUMBER 389 - TOTAL Q VS DIVERTED Q IN CFS
                       .0        .0     2060.0       1.0     4980.0  2580.0     6630.0  3530.0    11150.0  7500.0
  389       1906         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1906       1909         0       4    CHANNEL        10.0    3340.     .0042     8.0   8.0      .025        .50         0
                                        OVERFLOW   1200.0    3340.     .0042    80.0  80.0      .025      15.00
  251        233         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  235        239         0       1    CHANNEL         1.0    3509.     .0050    50.0  50.0      .020      10.00         0
  239        234         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  234        232         0       4    CHANNEL         2.0    2072.     .0044     3.0   3.0      .050       2.00         0
                                        OVERFLOW     50.0    2072.     .0044    50.0  50.0      .035      10.00
  233        232       - 0       4    CHANNEL        65.0    3076.     .0100     2.0   2.0      .050       4.00         0
                                        OVERFLOW    600.0    3076.     .0100   200.0 200.0      .080      20.00
  232        236         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  236        252         5       3                     .0       1.     .0010      .0    .0      .001      10.00      1403
                     DIVERSION TO GUTTER NUMBER1403 - TOTAL Q VS DIVERTED Q IN CFS
                       .0        .0     2060.0       1.0     2400.0   100.0     3100.0   500.0    10000.0  2500.0
 1403       1599         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  252        231         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1357        357         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  357       1401         6       3                     .0       1.     .0010      .0    .0      .001      10.00      1325
                     DIVERSION TO GUTTER NUMBER1325 - TOTAL Q VS DIVERTED Q IN CFS
                       .0        .0       26.0        .1      263.0   235.0      391.0   361.0      995.0   960.0     5000.0  4950.0
 1401       1387         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1387        387         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  387       1908         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1908       1320         0       4    CHANNEL         2.0    1718.     .0076     3.0   3.0      .025       2.00         0
                                        OVERFLOW    600.0    1718.     .0076    80.0  80.0      .025      10.00
  266        376         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  376        375         0       1    CHANNEL         4.0    1569.     .0041     4.0   4.0      .050      10.00         0
  375       1374         4       3                     .0       1.     .0010      .0    .0      .001      10.00      1404
                     DIVERSION TO GUTTER NUMBER1404 - TOTAL Q VS DIVERTED Q IN CFS
                       .0        .0       24.0        .1      135.0   100.0      540.0   500.0
 1374        374         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  374        372         0       4    CHANNEL         4.0    2538.     .0115     3.0   3.0      .045       2.00         0
                                        OVERFLOW     20.0    2538.     .0115    20.0  20.0      .035      10.00
  373        372         0       4    CHANNEL         3.0    1779.     .0075     4.0   4.0      .045       1.00         0
                                        OVERFLOW     20.0    1779.     .0075    20.0  20.0      .035      10.00
 1367        367         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  367        372         0       4    CHANNEL          .5    2663.     .0103    12.0  12.0      .016        .50         0
                                        OVERFLOW     10.0    2663.     .0103    20.0  20.0      .020      10.00
  372        371         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  371        311         0       4    CHANNEL        10.0    2893.     .0078     2.0   2.0      .045       1.00         0
                                        OVERFLOW     10.0    2893.     .0078    50.0  50.0      .035      10.00
 1339       1822         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
 1348        348         0       3                     .0       1.     .0010      .0    .0      .001      10.00         0
  348       1937         5       3                     .0       1.     .0010      .0    .0      .001      10.00      1331
                     DIVERSION TO GUTTER NUMBER1331 - TOTAL Q VS DIVERTED Q IN CFS
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                           .0      .0      31.0    30.0     542.0   335.0       795.0  466.0    1394.0   766.0
 1937        1386          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  385        1386          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1386         386          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  386         395          6          3                       .0         1.     .0010       .0    .0       .001       10.00     1407
                     DIVERSION TO GUTTER NUMBER1407 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0     206.0     1.0     394.0    64.0       902.0  273.0    2616.0   572.0      5000.0 1100.0
  395         394          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  394        1822          0          4     CHANNEL           .5      1000.     .0061     12.0  12.0       .016         .50        0
                                              OVERFLOW      10.0      1000.     .0061     20.0  20.0       .020       10.00
 1822         339          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  339        1313          4          3                       .0         1.     .0010       .0    .0       .001       10.00     1336
                     DIVERSION TO GUTTER NUMBER1336 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0      30.0    20.0     300.0   200.0      3000.0 2000.0
 1313        1939          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1362         362          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  363         362          0          1     CHANNEL          1.0      4078.     .0121     20.0   5.0       .020       10.00        0
  362         398          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  398        1396         10          2     PIPE              .1         1.     .0010       .0    .0       .030         :10        0
                     RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                           .0      .0        .4    26.0       1.3   138.0         2.1  200.0       2.4   260.0         2.8  360.0
                          3.4   510.0       4.0   893.0       5.0  1809.0       15.0 10000.0
 1396         396          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  396         308          7          3                       .0         1.     .0010       .0    .0       .001       10.00      385
                     DIVERSION TO GUTTER NUMBER 385 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0     260.0      .1     360.0    60.0       510.0  190.0     893.0   545.0      1809.0 1388.0
                      10000.0  9550.0
  308         314          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  314        1939          0          1     CHANNEL          8.0       600.     .0048       .1   2.0       .050       15.00        0
 1939         313          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  313        1910          6          3                       .0         1.     .0010       .0    .0       .001       10.00     1409
                     DIVERSION TO GUTTER NUMBER1409 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0     260.0      .1     389.0   129.0       470.0  195.0     648.0   358.0     10000.0 9500.0
 1910        1940          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1366         366          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  366         344          0          4     CHANNEL           .5      5533.     .0079     12.0  12.0       .016         .50        0
                                              OVERFLOW      10.0      5533.     .0079     20.0  20.0       .020       10.00
  344        1408          4          3                       .0         1.     .0010       .0    .0       .001       10.00     1339
                     DIVERSION TO GUTTER NUMBER1339 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0      25.0      .1      50.0    25.0      2000.0   35.0
 1408        1940          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1940         312          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  312         311          0          1     CHANNEL          8.0      1520.     .0068      2.0   2.0       .050       10.00        0
  311         358          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  358         393          0          4     CHANNEL          8.0      2401.     .0100      1.5   1.5       .030        4.50        0
                                              OVERFLOW      20.0      2401.     .0100     50.0  50.0       .020       10.00
  393        1357          8          3                       .0         1.     .0010       .0    .0       .001       10.00     1393
                     DIVERSION TO GUTTER NUMBER1393 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0     240.0     1.0     598.0    79.0       874.0  150.0    1822.0   391.0      2281.0  509.0
                       3048.0   704.0    4515.0  1075.0
 1393        1941          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1941         392          0          4     CHANNEL          4.0       423.     .0142      4.0   4.0       .030         .50        0
                                              OVERFLOW      30.0       423.     .0142     12.0  12.0       .032       15.00
 1325         325          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1331         331          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1407         331          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  331         337          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  337         328          0          4     CHANNEL           .5      2862.     .0066     12.0  12.0       .016         .50        0
                                              OVERFLOW      10.0      2862.     .0066     20.0  20.0       .020       10.00
 1329         328          0          4     CHANNEL           .5      2288.     .0088     12.0  12.0       .016         .50        0
                                              OVERFLOW      10.0      2288.     .0088     20.0  20.0       .020       10.00
 1340         340          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  340        1333          6          3                       .0         1.     .0010       .0    .0       .001       10.00     1348
                     DIVERSION TO GUTTER NUMBER1348 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0      66.0    31.0     833.0   542.0      1194.0  795.0    2037.0  1394.0      3730.0 2560.0
 1333         333          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  333         332          0          1     CHANNEL          1.0      2969.     .0047     50.0   5.0       .020       20.00        0
  341        1334          6          3                       .0         1.     .0010       .0    .0       .001       10.00     1340
                     DIVERSION TO GUTTER NUMBER1340 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0      71.0    66.0    1120.0   833.0      1616.0 1194.0    2776.0  2037.0      5110.0 3730.0
 1334         334          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  334         332          0          1     CHANNEL          1.0      2967.     .0047      5.0  50.0       .020       20.00        0
  332        1308          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1308        1307          4          3                       .0         1.     .0010       .0    .0       .001       10.00     1306
                     DIVERSION TO GUTTER NUMBER1306 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0      56.2    56.1    1080.0    60.5      2500.0   65.0
 1307        1305          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1306         330          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  346         345          0          4     CHANNEL           .5      1855.     .0179     12.0  12.0       .016         .50        0
                                              OVERFLOW      10.0      1855.     .0179     20.0  20.0       .020       10.00
  345         359          0          4     CHANNEL           .5      3689.     .0097     12.0  12.0       .016         .50        0
                                              OVERFLOW      10.0      3689.     .0097     20.0  20.0       .020       10.00
  350        1915          0          5     PIPE             2.0      2980.     .0074       .0    .0       .015        2.00        0
                                              OVERFLOW       1.0      2980.     .0074     20.0  20.0       .020       20.00
 1360         360          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1923         292          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  292         360          0          4     CHANNEL          1.0      1500.     .0027     50.0  50.0       .020        1.00        0
                                              OVERFLOW      15.0      1500.     .0027      4.0   4.0       .020       10.00
  360        1934          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1934        1919          0          4     CHANNEL          1.0      1500.     .0027     50.0  50.0       .020        1.00        0
                                              OVERFLOW      15.0      1500.     .0027      4.0   4.0       .020       10.00
  353        1919          0          4     CHANNEL           .5      1591.     .0037     12.0  12.0       .016         .50        0
                                              OVERFLOW      10.0      1591.     .0037     20.0  20.0       .020       10.00
 1919         352          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
  352        1812          7          2     PIPE              .1         1.     .0010       .0    .0       .030         .10        0
                     RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                           .0      .0        .7    20.0       2.2    31.0         5.8   39.0      12.8   300.0        23.3 3986.0
                         50.0 10000.0
 1812        1813          0          3                       .0         1.     .0010       .0    .0       .001       10.00        0
 1813        1814          7          3                       .0         1.     .0010       .0    .0       .001       10.00     1815
                     DIVERSION TO GUTTER NUMBER1815 - TOTAL Q VS DIVERTED Q IN CFS
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                   .0      .0     40.0      .1     314.0    77.0    1075.0   357.0   2228.0   783.0   4144.0  1719.0
               6379.0  2711.0
  1814     351       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   351    1913       0       5     PIPE          2.0   2056.    .0117     .0    .0     .015      2.00       0
                                     OVERFLOW   40.0   2056.    .0117    8.0   8.0     .035     15.00
  1815    1816       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1818    1817       0       4     CHANNEL       2.0    354.    .0100    4.0   4.0     .020      1.00       0
                                     OVERFLOW   12.0    354.    .0100   10.0  10.0     .030     10.00
  1816    1817       0       4     CHANNEL       6.0    837.    .0037   12.0  12.0     .015      1.00       0
                                     OVERFLOW   30.0    837.    .0037    8.0   3.0     .030     15.00
  1817     354       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   354    1913       0       5     PIPE          1.5   1345.    .2800     .0    .0     .015      1.50       0
                                     OVERFLOW   24.0   1345.    .2800   20.0   5.0     .035     15.00
  1913    1914       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1914    1915       0       5     PIPE          2.0    756.    .0066     .0    .0     .016      2.00       0
                                     OVERFLOW    1.0    756.    .0066   20.0  20.0     .020     15.00
  1915     347       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   347     359       0       5     PIPE          4.0   2229.    .0173     .0    .0     .015      4.00       0
                                     OVERFLOW   10.0   2229.    .0173   20.0  20.0     .020     20.00
   349     359       0       1     CHANNEL      10.0   2788.    .0217   20.0  20.0     .035     10.00       0
   355     359       0       5     PIPE          2.0   3762.    .0121     .0    .0     .020      2.00       0
                                     OVERFLOW    1.0   3762.    .0121    5.0  20.0     .020     10.00
   359     356       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   356    1343      10       2     PIPE           .1      1.    .0010     .0    .0     .030       .10       0
             RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                   .0      .0       .3    14.0       3.4   138.0       5.3   200.0      6.6   210.0      7.7   230.0
                  9.7   332.0     14.5  1712.0      18.2  2617.0      23.4  5064.0
  1343     343       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   343    1342       7       3                    .0      1.    .0010     .0    .0     .001     10.00    1362
             DIVERSION TO GUTTER NUMBER1362 - TOTAL Q VS DIVERTED Q IN CFS
                   .0      .0    230.0   229.0     332.0   260.0    1712.0   360.0   2617.0   510.0   5064.0   893.0
               9890.0  1680.0
  1342     342       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   342    1335       6       3                    .0      1.    .0010     .0    .0     .001     10.00    1341
             DIVERSION TO GUTTER NUMBER1341 - TOTAL Q VS DIVERTED Q IN CFS
                   .0      .0     72.0    71.0    1352.0  1120.0    2107.0  1616.0   4171.0  2776.0   8280.0  5110.0
  1341     341       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1335     335       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   335    1301       0       1     CHANNEL      10.0   3343.    .0047   18.0   5.0     .045     20.00       0
  1301    1302       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1302    1303       4       3                    .0      1.    .0010     .0    .0     .001     10.00    1304
             DIVERSION TO GUTTER NUMBER1304 - TOTAL Q VS DIVERTED Q IN CFS
                   .0      .0    585.0     1.0    1973.0  1149.0    3964.0  2984.0
  1303     330       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1304    1305       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1305    1599       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   330     329       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   329     328       0       1     CHANNEL       8.0   1804.    .0012    3.5   3.5     .024     20.00       0
  1309    1311       6       3                    .0      1.    .0010     .0    .0     .001     10.00    1312
             DIVERSION TO GUTTER NUMBER1312 - TOTAL Q VS DIVERTED Q IN CFS
                   .0      .0    725.2      .1     824.2      .2     981.0    51.0   3918.0  1261.0   6125.0  2048.0
  1311     327       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   368    1330       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1312    1330       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1330    1332       0       5     PIPE          1.5   3079.    .0078   10.0  10.0     .025      1.50       0
                                     OVERFLOW   28.0   3079.    .0078    5.0   5.0     .040      5.00
  1332    1368       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1368    1369       3       3                    .0      1.    .0010     .0    .0     .001     10.00    1371
             DIVERSION TO GUTTER NUMBER1371 - TOTAL Q VS DIVERTED Q IN CFS
                   .0      .0    245.0      .1    3280.0   418.6
  1369    1370       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1370    1365       0       5     PIPE          1.5   1286.    .0030     .0    .0     .025      1.50       0
                                     OVERFLOW   30.0   1286.    .0030   10.0  10.0     .025     15.00
  1371    1372       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1372    1599       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   328    1309       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   327     326       0       4     CHANNEL       8.0   1305.    .0008    3.5   3.5     .024      4.00       0
                                     OVERFLOW   40.0   1305.    .0008    5.7   7.5     .028     20.00
  1409     310       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1336     336       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   336    1310       4       3                    .0      1.    .0010     .0    .0     .001     10.00    1942
             DIVERSION TO GUTTER NUMBER1942 - TOTAL Q VS DIVERTED Q IN CFS
                   .0      .0     20.0    10.0     200.0   100.0    2000.0  1000.0
  1942    1940       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1310     310       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   310     315       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   315     317       0       4     CHANNEL        .5   3664.    .0088   12.0  12.0     .016       .50       0
                                     OVERFLOW   10.0   3664.    .0088   20.0  20.0     .020     10.00
   316     317       0       4     CHANNEL        .5   2903.    .0079   12.0  12.0     .016       .50       0
                                     OVERFLOW   10.0   2903.    .0079   20.0  20.0     .020     10.00
   317     326       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   326     325       0       4     CHANNEL       8.0    458.    .0008    3.5   3.5     .024      4.00       0
                                     OVERFLOW   40.0    458.    .0008    5.7   7.5     .028     20.00
   325     324       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   324    1392       7       3                    .0      1.    .0010     .0    .0     .001     10.00    1402
             DIVERSION TO GUTTER NUMBER1402 - TOTAL Q VS DIVERTED Q IN CFS
                   .0      .0    725.1      .1     824.0    98.0     930.0   180.0   2657.0  1833.0   4077.0  3077.0
              10000.0  8800.0
  1402    1323       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
  1323     323       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   323    1321       7       3                    .0      1.    .0010     .0    .0     .001     10.00    1387
             DIVERSION TO GUTTER NUMBER1387 - TOTAL Q VS DIVERTED Q IN CFS
                   .0      .0     50.0    49.9     254.0    60.0    1565.0   100.0   2841.0   150.0   4250.0   200.0
               8800.0   400.0
  1392     392       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   392     391       0       3                    .0      1.    .0010     .0    .0     .001     10.00       0
   391    1911       0       4     CHANNEL      15.0   1048.    .0012    3.5   3.5     .045      5.00       0
                                     OVERFLOW   55.0   1048.    .0012    4.0   7.5     .055     20.00
   338     318       0       4     CHANNEL       1.0   2263.    .0089    1.0   1.0     .045      1.00       0
                                     OVERFLOW   10.0   2263.    .0089   50.0  50.0     .035     10.00
   318    1911       0       4     CHANNEL       8.0   2821.    .0012    3.0   3.0     .045      1.50       0
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                                                 OVERFLOW       10.0     2821.      .0012      20.0  20.0        .035        10.00
 1911         1912          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1912          390          0           4      CHANNEL          15.0     1048.      .0012       3.5   3.5        .045         4.00        0
                                                 OVERFLOW       70.0     1048.      .0012       7.5   5.0        .055        20.00
  390         1238          7           3                         .0        1.      .0010        .0    .0        .001        10.00      388
                      DIVERSION TO GUTTER NUMBER 388 - TOTAL Q VS DIVERTED Q IN CFS
                             .0      .0    200.0       1.0      205.0      5.0      274.0   73.0      431.0    229.0   726.0    523.0
                        5000.0  4795.0
  388         1907          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1907         1320          0           4      CHANNEL           4.0     2175.      .0064       3.0   3.0        .025         2.00        0
                                                 OVERFLOW      300.0     2175.      .0064      80.0  80.0        .025        15.00
 1320          320          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
  320         1909          0           4      CHANNEL           6.0     1412.      .0087       3.0   3.0        .035         2.00        0
                                                 OVERFLOW      700.0     1412.      .0087     100.0 100.0        .035        10.00
 1909          322          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1321          321          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
  321         1337          0           1      CHANNEL          10.0     1092.      .0080      50.0  50.0        .045        15.00        0
 1337         1338          3           3                         .0        1.      .0010        .0    .0        .001        10.00     1363
                      DIVERSION TO GUTTER NUMBER1363 - TOTAL Q VS DIVERTED Q IN CFS
                             .0      .0     10.0        .1     3500.0  1910.4
 1338         1361          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1361         1320          0           5      PIPE              1.5      823.      .0100        .0    .0        .025         1.50        0
                                                 OVERFLOW       50.0      823.      .0100      20.0  20.0        .045        15.00
  361         1364          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1363         1364          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1364         1365          0           5      PIPE              1.5     1547.      .0078        .0    .0        .025         1.50        0
                                                 OVERFLOW       10.0     1547.      .0078      50.0  50.0        .045        20.00
 1365         1944          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
  370         1944          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1944         1945          0           5      PIPE              4.5     1283.      .0109        .0    .0        .025         4.50        0
                                                 OVERFLOW       10.0     1283.      .0109      50.0  50.0        .035        20.00
 1945         1373          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1373         1375          3           3                         .0        1.      .0010        .0    .0        .001        10.00     1377
                      DIVERSION TO GUTTER NUMBER1377 - TOTAL Q VS DIVERTED Q IN CFS
                             .0      .0    195.7        .1     5200.0  3985.2
 1377         1372          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1375         1376          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1376         1946          0           4      CHANNEL           8.0      750.      .0100       3.0   3.0        .045         6.00        0
                                                 OVERFLOW       50.0      750.      .0100      20.0  20.0        .050         5.00
  322         1943          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1943         1946          0           4      CHANNEL          20.0     1443.      .0083       4.0   4.0        .045         6.00        0
                                                 OVERFLOW      400.0     1443.      .0083      50.0  50.0        .060        10.00
 1946          319          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
  319          271          0           4      CHANNEL          30.0     4190.      .0086       4.0   4.0        .065         7.00        0
                                                 OVERFLOW      500.0     4190.      .0086      50.0  50.0        .060        10.00
  231          271          0           4      CHANNEL         130.0     5118.      .0074       4.0   4.0        .055         8.00        0
                                                 OVERFLOW      600.0     5118.      .0074      50.0  50.0        .050        20.00
  271          270          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
  270          399          0           4      CHANNEL          70.0     2605.      .0074       3.0   3.0        .055         8.00        0
                                                 OVERFLOW      700.0     2605.      .0074     100.0 100.0        .040        20.00
  399         1599          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1599         1947          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
 1947            0          0           3                         .0        1.      .0010        .0    .0        .001        10.00        0
0TOTAL NUMBER OF GUTTERS/PIPES, 610
1


 model sbc_ltd.swi
 10-year model


 ARRANGEMENT OF SUBCATCHMENTS AND GUTTERS/PIPES

       GUTTER     TRIBUTARY GUTTER/PIPE                                            TRIBUTARY SUBAREA                                D.A.(AC)

         1          2    5    0    0    0    0    0    0    0    0                  1    0    0    0    0    0    0    0    0    0 64741.0

         2          3    4    0    0    0    0    0    0    0    0                  2    0    0    0    0    0    0    0    0    0  2408.0

         3          0    0    0    0    0    0    0    0    0    0                  3    0    0    0    0    0    0    0    0    0   929.0

         4          0    0    0    0    0    0    0    0    0    0                  4    0    0    0    0    0    0    0    0    0   960.0

         5          7    6   13    0    0    0    0    0    0    0                  5    0    0    0    0    0    0    0    0    0 61766.0

         6        397    0    0    0    0    0    0    0    0    0                  6    0    0    0    0    0    0    0    0    0 59943.0

         7          9   10    0    0    0    0    0    0    0    0                  7    0    0    0    0    0    0    0    0    0   986.0

         8         15   22    0    0    0    0    0    0    0    0                  8    0    0    0    0    0    0    0    0    0 59647.0

         9          0    0    0    0    0    0    0    0    0    0                  9    0    0    0    0    0    0    0    0    0   411.0

        10          0    0    0    0    0    0    0    0    0    0                 10    0    0    0    0    0    0    0    0    0   202.0

        11          0    0    0    0    0    0    0    0    0    0                 11    0    0    0    0    0    0    0    0    0   113.0

        12          0    0    0    0    0    0    0    0    0    0                 12    0    0    0    0    0    0    0    0    0   159.0

        13         11   12    0    0    0    0    0    0    0    0                 13    0    0    0    0    0    0    0    0    0   501.0

        14          0    0    0    0    0    0    0    0    0    0                 14    0    0    0    0    0    0    0    0    0   132.0

        15         14   16    0    0    0    0    0    0    0    0                 15    0    0    0    0    0    0    0    0    0 53636.0

        16         40   17    0    0    0    0    0    0    0    0                 16    0    0    0    0    0    0    0    0    0 53468.0

        17         18   21    0    0    0    0    0    0    0    0                 17    0    0    0    0    0    0    0    0    0  1706.0

        18         20    0    0    0    0    0    0    0    0    0                 18    0    0    0    0    0    0    0    0    0  1171.0
```

```
 20     0    0    0    0    0    0    0    0    0    0        19    0    0    0    0    0    0    0    0    0    606.0
 21     0    0    0    0    0    0    0    0    0    0        20    0    0    0    0    0    0    0    0    0    379.0
 22    23   24    0    0    0    0    0    0    0    0        21    0    0    0    0    0    0    0    0    0   4784.0
 23    37   34   31    0    0    0    0    0    0    0        22    0    0    0    0    0    0    0    0    0   2671.0
 24    25   26    0    0    0    0    0    0    0    0        23    0    0    0    0    0    0    0    0    0   1666.0
 25     0    0    0    0    0    0    0    0    0    0        24    0    0    0    0    0    0    0    0    0    363.0
 26    27   28    0    0    0    0    0    0    0    0        25    0    0    0    0    0    0    0    0    0   1199.0
 27     0    0    0    0    0    0    0    0    0    0        26    0    0    0    0    0    0    0    0    0    107.0
 28    29   30    0    0    0    0    0    0    0    0        27    0    0    0    0    0    0    0    0    0    998.0
 29     0    0    0    0    0    0    0    0    0    0        28    0    0    0    0    0    0    0    0    0    152.0
 30     0    0    0    0    0    0    0    0    0    0        29    0    0    0    0    0    0    0    0    0    546.0
 31    32   33    0    0    0    0    0    0    0    0        30    0    0    0    0    0    0    0    0    0    508.0
 32     0    0    0    0    0    0    0    0    0    0        31    0    0    0    0    0    0    0    0    0    144.0
 33     0    0    0    0    0    0    0    0    0    0        32    0    0    0    0    0    0    0    0    0    257.0
 34    35   36    0    0    0    0    0    0    0    0        33    0    0    0    0    0    0    0    0    0    844.0
 35     0    0    0    0    0    0    0    0    0    0        34    0    0    0    0    0    0    0    0    0    148.0
 36     0    0    0    0    0    0    0    0    0    0        35    0    0    0    0    0    0    0    0    0    251.0
 37    38   39    0    0    0    0    0    0    0    0        36    0    0    0    0    0    0    0    0    0   1124.0
 38     0    0    0    0    0    0    0    0    0    0        37    0    0    0    0    0    0    0    0    0    368.0
 39     0    0    0    0    0    0    0    0    0    0        38    0    0    0    0    0    0    0    0    0    290.0
 40    41   42    0    0    0    0    0    0    0    0        39    0    0    0    0    0    0    0    0    0  51645.0
 41     0    0    0    0    0    0    0    0    0    0        40    0    0    0    0    0    0    0    0    0    205.0
 42    46   62   68    0    0    0    0    0    0    0        41    0    0    0    0    0    0    0    0    0  51084.0
 44  1512 1501    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  30179.0
 46    59   60    0    0    0    0    0    0    0    0        42    0    0    0    0    0    0    0    0    0  47929.0
 48    50   49    0    0    0    0    0    0    0    0        69    0    0    0    0    0    0    0    0    0  72077.0
 49     0    0    0    0    0    0    0    0    0    0        72    0    0    0    0    0    0    0    0    0    220.0
 50    51   52   56    0    0    0    0    0    0    0        71    0    0    0    0    0    0    0    0    0  71466.0
 51     0    0    0    0    0    0    0    0    0    0        82    0    0    0    0    0    0    0    0    0    362.0
 52   244  245   53    0    0    0    0    0    0    0        73    0    0    0    0    0    0    0    0    0  59055.0
 53    54   55    0    0    0    0    0    0    0    0        75    0    0    0    0    0    0    0    0    0    536.0
 54     0    0    0    0    0    0    0    0    0    0        76    0    0    0    0    0    0    0    0    0    213.0
 55     0    0    0    0    0    0    0    0    0    0        77    0    0    0    0    0    0    0    0    0    297.0
 56    57   58    0    0    0    0    0    0    0    0        78   79    0    0    0    0    0    0    0    0   1842.0
 57     0    0    0    0    0    0    0    0    0    0        81    0    0    0    0    0    0    0    0    0    776.0
 58     0    0    0    0    0    0    0    0    0    0        80    0    0    0    0    0    0    0    0    0    220.0
 59    74   71    0    0    0    0    0    0    0    0        43    0    0    0    0    0    0    0    0    0  47507.0
 60     0    0    0    0    0    0    0    0    0    0        44    0    0    0    0    0    0    0    0    0    225.0
 61    63   64    0    0    0    0    0    0    0    0        45    0    0    0    0    0    0    0    0    0   1044.0
 62    61   65    0    0    0    0    0    0    0    0        46    0    0    0    0    0    0    0    0    0   2039.0
 63     0    0    0    0    0    0    0    0    0    0        47    0    0    0    0    0    0    0    0    0    234.0
 64     0    0    0    0    0    0    0    0    0    0        48    0    0    0    0    0    0    0    0    0    258.0
 65    66   67    0    0    0    0    0    0    0    0        49    0    0    0    0    0    0    0    0    0    956.0
 66     0    0    0    0    0    0    0    0    0    0        50    0    0    0    0    0    0    0    0    0    108.0
 67     0    0    0    0    0    0    0    0    0    0        51    0    0    0    0    0    0    0    0    0    636.0
 68    69   70    0    0    0    0    0    0    0    0        52    0    0    0    0    0    0    0    0    0    523.0
 69     0    0    0    0    0    0    0    0    0    0        53    0    0    0    0    0    0    0    0    0    197.0
 70     0    0    0    0    0    0    0    0    0    0        54    0    0    0    0    0    0    0    0    0    246.0
 71    72   73    0    0    0    0    0    0    0    0        55    0    0    0    0    0    0    0    0    0   1094.0
 72     0    0    0    0    0    0    0    0    0    0        56    0    0    0    0    0    0    0    0    0    197.0
 73     0    0    0    0    0    0    0    0    0    0        57    0    0    0    0    0    0    0    0    0    636.0
```

```
  74    77  76  94   0   0   0   0   0   0   0         58   0   0   0   0   0   0   0   0   0 46117.0
  75    79  78   0   0   0   0   0   0   0   0         61   0   0   0   0   0   0   0   0   0  3945.0
  76     0   0   0   0   0   0   0   0   0   0         63   0   0   0   0   0   0   0   0   0   379.0
  77    75  88   0   0   0   0   0   0   0   0         65   0   0   0   0   0   0   0   0   0  4793.0
  78     0   0   0   0   0   0   0   0   0   0         66   0   0   0   0   0   0   0   0   0   256.0
  79    80 121   0   0   0   0   0   0   0   0         70   0   0   0   0   0   0   0   0   0  3627.0
  80    82  81   0   0   0   0   0   0   0   0         83   0   0   0   0   0   0   0   0   0  2668.0
  81    87   0   0   0   0   0   0   0   0   0         84   0   0   0   0   0   0   0   0   0   958.0
  82    84  83   0   0   0   0   0   0   0   0         85   0   0   0   0   0   0   0   0   0   848.0
  83     0   0   0   0   0   0   0   0   0   0         86   0   0   0   0   0   0   0   0   0   197.0
  84    85  86   0   0   0   0   0   0   0   0         87   0   0   0   0   0   0   0   0   0   555.0
  85     0   0   0   0   0   0   0   0   0   0         88   0   0   0   0   0   0   0   0   0   118.0
  86     0   0   0   0   0   0   0   0   0   0         89   0   0   0   0   0   0   0   0   0   331.0
  87     0   0   0   0   0   0   0   0   0   0         90   0   0   0   0   0   0   0   0   0   655.0
  88    89  93   0   0   0   0   0   0   0   0         91   0   0   0   0   0   0   0   0   0   782.0
  89     0   0   0   0   0   0   0   0   0   0        228   0   0   0   0   0   0   0   0   0   319.0
  93     0   0   0   0   0   0   0   0   0   0        229   0   0   0   0   0   0   0   0   0   111.0
  94    95  97   0   0   0   0   0   0   0   0         92   0   0   0   0   0   0   0   0   0 40534.0
  95    96 116   0   0   0   0   0   0   0   0        230   0   0   0   0   0   0   0   0   0 34430.0
  96   129 122   0   0   0   0   0   0   0   0         93   0   0   0   0   0   0   0   0   0 33528.0
  97    99  98   0   0   0   0   0   0   0   0         94   0   0   0   0   0   0   0   0   0  5629.0
  98     0   0   0   0   0   0   0   0   0   0         95   0   0   0   0   0   0   0   0   0   309.0
  99   101 100   0   0   0   0   0   0   0   0         96   0   0   0   0   0   0   0   0   0  4848.0
 100     0   0   0   0   0   0   0   0   0   0         97   0   0   0   0   0   0   0   0   0   458.0
 101   102 107   0   0   0   0   0   0   0   0         98   0   0   0   0   0   0   0   0   0  4335.0
 102   106 103   0   0   0   0   0   0   0   0         99   0   0   0   0   0   0   0   0   0  2382.0
 103   104 105   0   0   0   0   0   0   0   0        100   0   0   0   0   0   0   0   0   0  1795.0
 104   119 117   0   0   0   0   0   0   0   0        101   0   0   0   0   0   0   0   0   0  1302.0
 105     0   0   0   0   0   0   0   0   0   0        102   0   0   0   0   0   0   0   0   0   343.0
 106     0   0   0   0   0   0   0   0   0   0        103   0   0   0   0   0   0   0   0   0   273.0
 107   108 109   0   0   0   0   0   0   0   0        104   0   0   0   0   0   0   0   0   0  1871.0
 108     0   0   0   0   0   0   0   0   0   0        105   0   0   0   0   0   0   0   0   0   202.0
 109   110 111   0   0   0   0   0   0   0   0        106   0   0   0   0   0   0   0   0   0  1563.0
 110   112 113   0   0   0   0   0   0   0   0        107   0   0   0   0   0   0   0   0   0  1148.0
 111     0   0   0   0   0   0   0   0   0   0        108   0   0   0   0   0   0   0   0   0   199.0
 112   114 115   0   0   0   0   0   0   0   0        109   0   0   0   0   0   0   0   0   0   540.0
 113     0   0   0   0   0   0   0   0   0   0        110   0   0   0   0   0   0   0   0   0   209.0
 114     0   0   0   0   0   0   0   0   0   0        111   0   0   0   0   0   0   0   0   0   230.0
 115     0   0   0   0   0   0   0   0   0   0        112   0   0   0   0   0   0   0   0   0   102.0
 116     0   0   0   0   0   0   0   0   0   0        113   0   0   0   0   0   0   0   0   0   702.0
 117     0   0   0   0   0   0   0   0   0   0        114   0   0   0   0   0   0   0   0   0   390.0
 118     0   0   0   0   0   0   0   0   0   0        115   0   0   0   0   0   0   0   0   0   453.0
 119   120 118   0   0   0   0   0   0   0   0        116   0   0   0   0   0   0   0   0   0   707.0
 120     0   0   0   0   0   0   0   0   0   0        117   0   0   0   0   0   0   0   0   0   220.0
 121     0   0   0   0   0   0   0   0   0   0         74   0   0   0   0   0   0   0   0   0   326.0
 122   124 123   0   0   0   0   0   0   0   0        118   0   0   0   0   0   0   0   0   0  2595.0
 123   127 128   0   0   0   0   0   0   0   0        119   0   0   0   0   0   0   0   0   0  1409.0
 124   125 126   0   0   0   0   0   0   0   0        120   0   0   0   0   0   0   0   0   0   705.0
 125     0   0   0   0   0   0   0   0   0   0        124   0   0   0   0   0   0   0   0   0   220.0
 126     0   0   0   0   0   0   0   0   0   0        125   0   0   0   0   0   0   0   0   0    88.0
 127     0   0   0   0   0   0   0   0   0   0        126   0   0   0   0   0   0   0   0   0   548.0
```

```
128      0    0    0    0    0    0    0    0    0    0     127    0    0    0    0    0    0    0    0    0    472.0
129    137  130    0    0    0    0    0    0    0    0     128    0    0    0    0    0    0    0    0    0  30354.0
130    133  131  132    0    0    0    0    0    0    0     129    0    0    0    0    0    0    0    0    0   2081.0
131      0    0    0    0    0    0    0    0    0    0     130    0    0    0    0    0    0    0    0    0    290.0
132      0    0    0    0    0    0    0    0    0    0     131    0    0    0    0    0    0    0    0    0    213.0
133    134    0    0    0    0    0    0    0    0    0     132    0    0    0    0    0    0    0    0    0   1468.0
134    135  136    0    0    0    0    0    0    0    0     133    0    0    0    0    0    0    0    0    0    972.0
135      0    0    0    0    0    0    0    0    0    0     134    0    0    0    0    0    0    0    0    0    160.0
136      0    0    0    0    0    0    0    0    0    0     135    0    0    0    0    0    0    0    0    0    282.0
137    138  139    0    0    0    0    0    0    0    0     136    0    0    0    0    0    0    0    0    0  28122.0
138      0    0    0    0    0    0    0    0    0    0     137    0    0    0    0    0    0    0    0    0    383.0
139    149  140    0    0    0    0    0    0    0    0     138    0    0    0    0    0    0    0    0    0  27597.0
140    142  141    0    0    0    0    0    0    0    0     139    0    0    0    0    0    0    0    0    0   2013.0
141      0    0    0    0    0    0    0    0    0    0     140    0    0    0    0    0    0    0    0    0    132.0
142    146  143    0    0    0    0    0    0    0    0     141    0    0    0    0    0    0    0    0    0   1697.0
143    144  145    0    0    0    0    0    0    0    0     142    0    0    0    0    0    0    0    0    0    540.0
144      0    0    0    0    0    0    0    0    0    0     143    0    0    0    0    0    0    0    0    0    274.0
145      0    0    0    0    0    0    0    0    0    0     144    0    0    0    0    0    0    0    0    0     79.0
146    147  148    0    0    0    0    0    0    0    0     145    0    0    0    0    0    0    0    0    0   1054.0
147      0    0    0    0    0    0    0    0    0    0     146    0    0    0    0    0    0    0    0    0    283.0
148      0    0    0    0    0    0    0    0    0    0     147    0    0    0    0    0    0    0    0    0    453.0
149    152  150  151    0    0    0    0    0    0    0     148    0    0    0    0    0    0    0    0    0  25514.0
150      0    0    0    0    0    0    0    0    0    0     149    0    0    0    0    0    0    0    0    0     58.0
151      0    0    0    0    0    0    0    0    0    0     150    0    0    0    0    0    0    0    0    0    189.0
152    153  154    0    0    0    0    0    0    0    0     151    0    0    0    0    0    0    0    0    0  25053.0
153      0    0    0    0    0    0    0    0    0    0     152    0    0    0    0    0    0    0    0    0    249.0
154    156  155    0    0    0    0    0    0    0    0     153    0    0    0    0    0    0    0    0    0  24303.0
155      0    0    0    0    0    0    0    0    0    0     154    0    0    0    0    0    0    0    0    0    161.0
156    157  158    0    0    0    0    0    0    0    0     155    0    0    0    0    0    0    0    0    0  23893.0
157    172  163  170  171    0    0    0    0    0    0     156    0    0    0    0    0    0    0    0    0  21505.0
158    160  159    0    0    0    0    0    0    0    0     157    0    0    0    0    0    0    0    0    0   1865.0
159      0    0    0    0    0    0    0    0    0    0     158    0    0    0    0    0    0    0    0    0    476.0
160    161  162    0    0    0    0    0    0    0    0     159    0    0    0    0    0    0    0    0    0   1045.0
161      0    0    0    0    0    0    0    0    0    0     160    0    0    0    0    0    0    0    0    0    341.0
162      0    0    0    0    0    0    0    0    0    0     161    0    0    0    0    0    0    0    0    0    362.0
163    166  164    0    0    0    0    0    0    0    0     162    0    0    0    0    0    0    0    0    0   1286.0
164      0    0    0    0    0    0    0    0    0    0     163    0    0    0    0    0    0    0    0    0     76.0
165    168  169    0    0    0    0    0    0    0    0     164    0    0    0    0    0    0    0    0    0    784.0
166    165  167    0    0    0    0    0    0    0    0     165    0    0    0    0    0    0    0    0    0   1098.0
167      0    0    0    0    0    0    0    0    0    0     166    0    0    0    0    0    0    0    0    0    215.0
168      0    0    0    0    0    0    0    0    0    0     167    0    0    0    0    0    0    0    0    0    259.0
169      0    0    0    0    0    0    0    0    0    0     168    0    0    0    0    0    0    0    0    0    175.0
170      0    0    0    0    0    0    0    0    0    0     169    0    0    0    0    0    0    0    0    0    332.0
171      0    0    0    0    0    0    0    0    0    0     170    0    0    0    0    0    0    0    0    0    139.0
172    187  173    0    0    0    0    0    0    0    0     171    0    0    0    0    0    0    0    0    0  19645.0
173    174  175    0    0    0    0    0    0    0    0     172    0    0    0    0    0    0    0    0    0   5003.0
174      0    0    0    0    0    0    0    0    0    0     173    0    0    0    0    0    0    0    0    0    188.0
175    177  176    0    0    0    0    0    0    0    0     174    0    0    0    0    0    0    0    0    0   4585.0
176    180  179    0    0    0    0    0    0    0    0     175    0    0    0    0    0    0    0    0    0   3882.0
177    178    0    0    0    0    0    0    0    0    0     176    0    0    0    0    0    0    0    0    0    625.0
178      0    0    0    0    0    0    0    0    0    0     177    0    0    0    0    0    0    0    0    0    392.0
```

```
  179       0    0    0    0    0    0    0    0    0    0       178    0    0    0    0    0    0    0    0    0   211.0
  180     181  182    0    0    0    0    0    0    0    0       179    0    0    0    0    0    0    0    0    0  2955.0
  181       0    0    0    0    0    0    0    0    0    0       180    0    0    0    0    0    0    0    0    0   438.0
  182     183  184    0    0    0    0    0    0    0    0       181    0    0    0    0    0    0    0    0    0  2016.0
  183       0    0    0    0    0    0    0    0    0    0       182    0    0    0    0    0    0    0    0    0   599.0
  184     186  185    0    0    0    0    0    0    0    0       183    0    0    0    0    0    0    0    0    0   910.0
  185       0    0    0    0    0    0    0    0    0    0       184    0    0    0    0    0    0    0    0    0   232.0
  186       0    0    0    0    0    0    0    0    0    0       185    0    0    0    0    0    0    0    0    0   461.0
  187     192  193    0    0    0    0    0    0    0    0       186    0    0    0    0    0    0    0    0    0 14569.0
  192     194  205    0    0    0    0    0    0    0    0       187    0    0    0    0    0    0    0    0    0 13278.0
  193       0    0    0    0    0    0    0    0    0    0       188    0    0    0    0    0    0    0    0    0   273.0
  194     198  199  196  195    0    0    0    0    0    0       189    0    0    0    0    0    0    0    0    0  5663.0
  195       0    0    0    0    0    0    0    0    0    0       190    0    0    0    0    0    0    0    0    0   251.0
  196       0    0    0    0    0    0    0    0    0    0       195    0    0    0    0    0    0    0    0    0   387.0
  198     201  200  202    0    0    0    0    0    0    0       196    0    0    0    0    0    0    0    0    0  3544.0
  199       0    0    0    0    0    0    0    0    0    0       197    0    0    0    0    0    0    0    0    0   634.0
  200       0    0    0    0    0    0    0    0    0    0       198    0    0    0    0    0    0    0    0    0   542.0
  201     204  203    0    0    0    0    0    0    0    0       199    0    0    0    0    0    0    0    0    0  1955.0
  202       0    0    0    0    0    0    0    0    0    0       200    0    0    0    0    0    0    0    0    0   250.0
  203       0    0    0    0    0    0    0    0    0    0       203    0    0    0    0    0    0    0    0    0   258.0
  204       0    0    0    0    0    0    0    0    0    0       204    0    0    0    0    0    0    0    0    0   854.0
  205     207  206    0    0    0    0    0    0    0    0       205    0    0    0    0    0    0    0    0    0  7500.0
  206       0    0    0    0    0    0    0    0    0    0       206    0    0    0    0    0    0    0    0    0   250.0
  207     211  208    0    0    0    0    0    0    0    0       207    0    0    0    0    0    0    0    0    0  6855.0
  208       0    0    0    0    0    0    0    0    0    0       208    0    0    0    0    0    0    0    0    0   275.0
  211     212  215    0    0    0    0    0    0    0    0       209    0    0    0    0    0    0    0    0    0  5808.0
  212     214  213    0    0    0    0    0    0    0    0       210    0    0    0    0    0    0    0    0    0  1581.0
  213       0    0    0    0    0    0    0    0    0    0       211    0    0    0    0    0    0    0    0    0   511.0
  214       0    0    0    0    0    0    0    0    0    0       212    0    0    0    0    0    0    0    0    0   482.0
  215     219  216  217    0    0    0    0    0    0    0       213    0    0    0    0    0    0    0    0    0  3943.0
  216       0    0    0    0    0    0    0    0    0    0       214    0    0    0    0    0    0    0    0    0   505.0
  217       0    0    0    0    0    0    0    0    0    0       215    0    0    0    0    0    0    0    0    0   245.0
  218     222  221    0    0    0    0    0    0    0    0       219    0    0    0    0    0    0    0    0    0  1711.0
  219     220  218    0    0    0    0    0    0    0    0       220    0    0    0    0    0    0    0    0    0  2654.0
  220       0    0    0    0    0    0    0    0    0    0       221    0    0    0    0    0    0    0    0    0   506.0
  221       0    0    0    0    0    0    0    0    0    0       222    0    0    0    0    0    0    0    0    0   250.0
  222     224  223    0    0    0    0    0    0    0    0       223    0    0    0    0    0    0    0    0    0  1417.0
  223       0    0    0    0    0    0    0    0    0    0       224    0    0    0    0    0    0    0    0    0   309.0
  224     226  225    0    0    0    0    0    0    0    0       225    0    0    0    0    0    0    0    0    0   926.0
  225       0    0    0    0    0    0    0    0    0    0       226    0    0    0    0    0    0    0    0    0   152.0
  226       0    0    0    0    0    0    0    0    0    0       227    0    0    0    0    0    0    0    0    0   286.0
  231     252    0    0    0    0    0    0    0    0    0       231    0    0    0    0    0    0    0    0    0 86054.0
  232     234  233    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 85664.0
  233     251    0    0    0    0    0    0    0    0    0       233    0    0    0    0    0    0    0    0    0 85477.0
  234     239    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   187.0
  235       0    0    0    0    0    0    0    0    0    0       235    0    0    0    0    0    0    0    0    0   187.0
  236     232    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 85664.0
  237     238    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 85196.0
  238    1927  240    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 85196.0
  239     235    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   187.0
  240     241    0    0    0    0    0    0    0    0    0       240    0    0    0    0    0    0    0    0    0 84397.0
```

```
   241     242    0    0    0    0    0    0    0    0    0       241    0    0    0    0    0    0    0    0    0  84351.0
   242     377  289  243    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  84008.0
   243    1427    0    0    0    0    0    0    0    0    0       243    0    0    0    0    0    0    0    0    0  80261.0
   244       0    0    0    0    0    0    0    0    0    0       253    0    0    0    0    0    0    0    0    0    848.0
   245       1  246    0    0    0    0    0    0    0    0       254    0    0    0    0    0    0    0    0    0  67230.0
   246     247  250    0    0    0    0    0    0    0    0       255    0    0    0    0    0    0    0    0    0   2389.0
   247       0    0    0    0    0    0    0    0    0    0       256    0    0    0    0    0    0    0    0    0    808.0
   248       0    0    0    0    0    0    0    0    0    0       257    0    0    0    0    0    0    0    0    0    645.0
   249       0    0    0    0    0    0    0    0    0    0       258    0    0    0    0    0    0    0    0    0    377.0
   250     248  249    0    0    0    0    0    0    0    0       259    0    0    0    0    0    0    0    0    0   1131.0
   251     237    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  85196.0
   252     236    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  85664.0
   261      44    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  80179.0
   262    1935    0    0    0    0    0    0    0    0    0       262    0    0    0    0    0    0    0    0    0   2758.0
   263     262    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2758.0
   264    1905    0    0    0    0    0    0    0    0    0       264    0    0    0    0    0    0    0    0    0   2784.0
   265     264    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2784.0
   266       0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
   267     293 1267    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   3624.0
   268     267    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   3624.0
   269     265    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2784.0
   270     271    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  86842.0
   271     319  231    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  86842.0
   280     294    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   3624.0
   289    1924    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   3653.0
   290    1290    0    0    0    0    0    0    0    0    0       290    0    0    0    0    0    0    0    0    0   3653.0
   291    1291    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   3624.0
   292    1923    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
   293    1293    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   3624.0
   294    1294  304 1920    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   3624.0
   295    1295    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
   296    1296    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
   297     298    0    0    0    0    0    0    0    0    0       297    0    0    0    0    0    0    0    0    0    587.0
   298     303    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    249.0
   299       0    0    0    0    0    0    0    0    0    0       299    0    0    0    0    0    0    0    0    0     72.0
   300     301    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    177.0
   301       0    0    0    0    0    0    0    0    0    0       301    0    0    0    0    0    0    0    0    0    177.0
   303     299 1922    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    249.0
   304       0    0    0    0    0    0    0    0    0    0       304    0    0    0    0    0    0    0    0    0    150.0
   308     396    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      7.0
   310    1409 1310    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
   311     371  312    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    247.0
   312    1940    0    0    0    0    0    0    0    0    0       312    0    0    0    0    0    0    0    0    0    100.0
   313    1939    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      7.0
   314     308    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      7.0
   315     310    0    0    0    0    0    0    0    0    0       315    0    0    0    0    0    0    0    0    0     28.0
   316       0    0    0    0    0    0    0    0    0    0       316    0    0    0    0    0    0    0    0    0     43.0
   317     315  316    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     71.0
   318     338    0    0    0    0    0    0    0    0    0       318    0    0    0    0    0    0    0    0    0    230.0
   319    1946    0    0    0    0    0    0    0    0    0       319    0    0    0    0    0    0    0    0    0    788.0
   320    1320    0    0    0    0    0    0    0    0    0       320    0    0    0    0    0    0    0    0    0    454.0
```

```
 321    1321    0    0    0    0    0    0    0    0    0      321    0    0    0    0    0    0    0    0    0    34.0
 322    1909    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   454.0
 323    1323    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     9.0
 324     325    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   569.0
 325    1325  326    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   569.0
 326     327  317    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   569.0
 327    1311    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   498.0
 328     337 1329  329    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   498.0
 329     330    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   417.0
 330    1306 1303    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   417.0
 331    1331 1407    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 332     333  334    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    10.0
 333    1333    0    0    0    0    0    0    0    0    0      333    0    0    0    0    0    0    0    0    0     5.0
 334    1334    0    0    0    0    0    0    0    0    0      334    0    0    0    0    0    0    0    0    0     5.0
 335    1335    0    0    0    0    0    0    0    0    0      335    0    0    0    0    0    0    0    0    0   417.0
 336    1336    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 337     331    0    0    0    0    0    0    0    0    0      337    0    0    0    0    0    0    0    0    0    50.0
 338       0    0    0    0    0    0    0    0    0    0      338    0    0    0    0    0    0    0    0    0    73.0
 339    1822    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 340    1340    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 341    1341    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 342    1342    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   381.0
 343    1343    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   381.0
 344     366    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    81.0
 345     346    0    0    0    0    0    0    0    0    0      345    0    0    0    0    0    0    0    0    0   149.0
 346       0    0    0    0    0    0    0    0    0    0      346    0    0    0    0    0    0    0    0    0    71.0
 347    1915    0    0    0    0    0    0    0    0    0      347    0    0    0    0    0    0    0    0    0   212.0
 348    1348    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 349       0    0    0    0    0    0    0    0    0    0      349    0    0    0    0    0    0    0    0    0    13.0
 350       0    0    0    0    0    0    0    0    0    0      350    0    0    0    0    0    0    0    0    0    51.0
 351    1814    0    0    0    0    0    0    0    0    0      351    0    0    0    0    0    0    0    0    0   100.0
 352    1919    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    41.0
 353       0    0    0    0    0    0    0    0    0    0      353    0    0    0    0    0    0    0    0    0    41.0
 354    1817    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     6.0
 355       0    0    0    0    0    0    0    0    0    0      355    0    0    0    0    0    0    0    0    0     7.0
 356     359    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   381.0
 357    1357    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   259.0
 358     311    0    0    0    0    0    0    0    0    0      358    0    0    0    0    0    0    0    0    0   259.0
 359     345  347  349  355    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   381.0
 360    1360  292    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 361       0    0    0    0    0    0    0    0    0    0      361    0    0    0    0    0    0    0    0    0    30.0
 362    1362  363    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     7.0
 363       0    0    0    0    0    0    0    0    0    0      363    0    0    0    0    0    0    0    0    0     7.0
 366    1366    0    0    0    0    0    0    0    0    0      366    0    0    0    0    0    0    0    0    0    81.0
 367    1367    0    0    0    0    0    0    0    0    0      367    0    0    0    0    0    0    0    0    0    23.0
 368       0    0    0    0    0    0    0    0    0    0      368    0    0    0    0    0    0    0    0    0    99.0
 369       0    0    0    0    0    0    0    0    0    0      369    0    0    0    0    0    0    0    0    0    17.0
 370       0    0    0    0    0    0    0    0    0    0      370    0    0    0    0    0    0    0    0    0    41.0
 371     372    0    0    0    0    0    0    0    0    0      371    0    0    0    0    0    0    0    0    0   147.0
 372     374  373  367    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    64.0
 373       0    0    0    0    0    0    0    0    0    0      373    0    0    0    0    0    0    0    0    0    38.0
```

```
 374   1374    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0      3.0
 375    376    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0      3.0
 376    266    0    0    0    0    0    0    0    0    0    376    0    0    0    0    0    0    0    0    0      3.0
 377   1925    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0     94.0
 378   1378    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0     94.0
 379    380    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0     94.0
 380   1821    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0     94.0
 381    382    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0     77.0
 382   1381    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0     77.0
 383   1820    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0     77.0
 384      0    0    0    0    0    0    0    0    0    0    384    0    0    0    0    0    0    0    0    0     77.0
 385      0    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
 386   1386    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
 387   1387    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    259.0
 388      0    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
 389      0    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
 390   1912    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    799.0
 391    392    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    569.0
 392   1941 1392    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    569.0
 393    358    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    259.0
 394    395    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
 395    386    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
 396   1396    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0      7.0
 397      8    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0  59647.0
 398    362    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0      7.0
 399    270    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0  36842.0
1238    390    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    799.0
1262      0    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
1267      0    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
1289      0    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
1290    291    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0   3624.0
1291    268    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0   3624.0
1293    280    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0   3624.0
1294    269    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0   2784.0
1295      0    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
1296    295    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
1301    335    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    417.0
1302   1301    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    417.0
1303   1302    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    417.0
1304      0    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
1305   1307 1304    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0     10.0
1306      0    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
1307   1308    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0     10.0
1308    332    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0     10.0
1309    328    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    498.0
1310    336    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
1311   1309    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    498.0
1312      0    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
1313    339    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0       .0
1320   1908 1907 1361    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0    293.0
1321    323    0    0    0    0    0    0    0    0    0      0    0    0    0    0    0    0    0    0    0      9.0
```

```
1323  1402    0    0    0    0    0    0    0    0    0      1323    0    0    0    0    0    0    0    0    0      9.0
1325     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1329     0    0    0    0    0    0    0    0    0    0       336    0    0    0    0    0    0    0    0    0     31.0
1330   368 1312    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     99.0
1331     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1332  1330    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     99.0
1333   340    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1334   341    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1335   342    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    381.0
1336     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1337   321    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     34.0
1338  1337    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     34.0
1339     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1340     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1341     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1342   343    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    381.0
1343   356    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    381.0
1348     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1357   393    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    259.0
1360     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1361  1338    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     34.0
1362     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1363     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1364   361 1363    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     30.0
1365  1370 1364    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    129.0
1366     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1367     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1368  1332    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     99.0
1369  1368    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     99.0
1370  1369    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     99.0
1371     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1372  1371 1377    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1373  1945    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    170.0
1374   375    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      3.0
1375  1373    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    170.0
1376  1375    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    170.0
1377     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1378  1406 1404    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     94.0
1381  1382 1405    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     77.0
1382   296    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1383     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1386  1937  385    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1387  1401    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    259.0
1392   324    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    569.0
1393     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1396   398    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      7.0
1401   357    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    259.0
1402     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1403     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1404     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1405   383    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     77.0
```

```
1406    379    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     94.0
1407      0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
1408    344    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     81.0
1409      0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
1410      0    0    0    0    0    0    0    0    0    0     1410    0    0    0    0    0    0    0    0    0    195.0
1411   1410 1424    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 77101.0
1412   1411    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 77101.0
1413   1412    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 77101.0
1414      0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
1415      0    0    0    0    0    0    0    0    0    0     1415    0    0    0    0    0    0    0    0    0    307.0
1416   1415 1553    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   1203.0
1420      0    0    0    0    0    0    0    0    0    0     1420    0    0    0    0    0    0    0    0    0     59.0
1421   1420 1426 1441    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 76906.0
1423   1421    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 76906.0
1424   1423    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 76906.0
1425      0    0    0    0    0    0    0    0    0    0     1425    0    0    0    0    0    0    0    0    0     68.0
1426   1438 1425    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    382.0
1427    261    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 80179.0
1428   1528    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
1429   1428 1416    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   1203.0
1430      0    0    0    0    0    0    0    0    0    0     1430    0    0    0    0    0    0    0    0    0     82.0
1431   1430    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     82.0
1435      0    0    0    0    0    0    0    0    0    0     1435    0    0    0    0    0    0    0    0    0    232.0
1436   1435    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    232.0
1438   1436 1431    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    314.0
1440      0    0    0    0    0    0    0    0    0    0     1440    0    0    0    0    0    0    0    0    0     66.0
1441   1453 1440    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 76465.0
1442   1514    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2719.0
1445      0    0    0    0    0    0    0    0    0    0     1445    0    0    0    0    0    0    0    0    0    164.0
1446   1445    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    164.0
1450      0    0    0    0    0    0    0    0    0    0     1450    0    0    0    0    0    0    0    0    0    198.0
1451   1603 1450    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 76235.0
1453   1446 1451    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 76399.0
1455      0    0    0    0    0    0    0    0    0    0     1455    0    0    0    0    0    0    0    0    0    542.0
1456   1455 1482    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   1274.0
1457   1456    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   1274.0
1460      0    0    0    0    0    0    0    0    0    0     1460    0    0    0    0    0    0    0    0    0    286.0
1461   1460    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    286.0
1465      0    0    0    0    0    0    0    0    0    0     1465    0    0    0    0    0    0    0    0    0     93.0
1467   1933 1932    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2351.0
1468   1467    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2351.0
1480   1938    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    732.0
1481   1480    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    732.0
1482   1481    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    732.0
1490      0    0    0    0    0    0    0    0    0    0     1490    0    0    0    0    0    0    0    0    0    698.0
1491   1490 1457    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   1972.0
1500      0    0    0    0    0    0    0    0    0    0     1500    0    0    0    0    0    0    0    0    0    465.0
1501   1500    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    465.0
1505      0    0    0    0    0    0    0    0    0    0     1505    0    0    0    0    0    0    0    0    0    262.0
1506   1505 1800    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 79714.0
1507   1506 1508    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 79714.0
```

```
1508        0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
1509     1413    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  77101.0
1510        0    0    0    0    0    0    0    0    0    0       1510    0    0    0    0    0    0    0    0    0     76.0
1511     1522 1510    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2719.0
1512     1507    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  79714.0
1513     1511    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2719.0
1514     1513    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2719.0
1515        0    0    0    0    0    0    0    0    0    0       1515    0    0    0    0    0    0    0    0    0      8.0
1517     1716 1515    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    123.0
1520        0    0    0    0    0    0    0    0    0    0       1520    0    0    0    0    0    0    0    0    0     99.0
1521     1520 1533    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2175.0
1522     1517 1548    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2643.0
1525        0    0    0    0    0    0    0    0    0    0       1525    0    0    0    0    0    0    0    0    0     53.0
1526     1525 1429    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   1256.0
1528        0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
1530        0    0    0    0    0    0    0    0    0    0       1530    0    0    0    0    0    0    0    0    0    345.0
1531     1530 1546    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    820.0
1532     1526 1531    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2076.0
1533     1537 1534    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2076.0
1534     1414    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
1537     1532    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2076.0
1541        0    0    0    0    0    0    0    0    0    0       1540    0    0    0    0    0    0    0    0    0    345.0
1542     1541    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    345.0
1544     1542 1521    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2520.0
1545        0    0    0    0    0    0    0    0    0    0       1545    0    0    0    0    0    0    0    0    0    253.0
1546     1545 1576    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    475.0
1548     1544    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2520.0
1550        0    0    0    0    0    0    0    0    0    0       1550    0    0    0    0    0    0    0    0    0    424.0
1551     1550 1563    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    642.0
1553     1551 1557    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    896.0
1556        0    0    0    0    0    0    0    0    0    0       1555    0    0    0    0    0    0    0    0    0     83.0
1557     1571 1556    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    254.0
1560        0    0    0    0    0    0    0    0    0    0       1560    0    0    0    0    0    0    0    0    0    123.0
1561     1560    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    123.0
1563     1561 1566    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    218.0
1565        0    0    0    0    0    0    0    0    0    0       1565    0    0    0    0    0    0    0    0    0     95.0
1566     1565    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     95.0
1570        0    0    0    0    0    0    0    0    0    0       1570    0    0    0    0    0    0    0    0    0    171.0
1571     1570    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    171.0
1575        0    0    0    0    0    0    0    0    0    0       1575    0    0    0    0    0    0    0    0    0    222.0
1576     1575    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    222.0
1599     1403 1305 1372  399    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  86852.0
1600        0    0    0    0    0    0    0    0    0    0       1600    0    0    0    0    0    0    0    0    0     25.0
1601     1928 1600    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  73681.0
1603     1601 1929    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  76037.0
1605        0    0    0    0    0    0    0    0    0    0       1605    0    0    0    0    0    0    0    0    0     81.0
1606     1605 1666    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    471.0
1610        0    0    0    0    0    0    0    0    0    0       1610    0    0    0    0    0    0    0    0    0    109.0
1611     1628 1610    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  73185.0
1615        0    0    0    0    0    0    0    0    0    0       1615    0    0    0    0    0    0    0    0    0    228.0
1616     1615    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    228.0
```

```
1620     0    0    0    0    0    0    0    0    0    0      1620    0    0    0    0    0    0    0    0    0    324.0
1621  1653 1620    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1816.0
1623  1616 1621    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2044.0
1624  1623 1705    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2111.0
1625     0    0    0    0    0    0    0    0    0    0      1625    0    0    0    0    0    0    0    0    0    197.0
1626    48 1625 1636    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  72591.0
1628  1631 1626    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  73076.0
1630     0    0    0    0    0    0    0    0    0    0      1630    0    0    0    0    0    0    0    0    0    159.0
1631  1643 1630    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    485.0
1635     0    0    0    0    0    0    0    0    0    0      1635    0    0    0    0    0    0    0    0    0    317.0
1636  1635    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    317.0
1640     0    0    0    0    0    0    0    0    0    0      1640    0    0    0    0    0    0    0    0    0    200.0
1641  1640    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    200.0
1643  1646 1641    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    326.0
1645     0    0    0    0    0    0    0    0    0    0      1645    0    0    0    0    0    0    0    0    0    126.0
1646  1645    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    126.0
1650     0    0    0    0    0    0    0    0    0    0      1650    0    0    0    0    0    0    0    0    0    382.0
1651  1661 1650    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    934.0
1653  1651 1656    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1492.0
1655     0    0    0    0    0    0    0    0    0    0      1655    0    0    0    0    0    0    0    0    0    558.0
1656  1655    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    558.0
1660     0    0    0    0    0    0    0    0    0    0      1660    0    0    0    0    0    0    0    0    0    552.0
1661  1660    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    552.0
1665     0    0    0    0    0    0    0    0    0    0      1665    0    0    0    0    0    0    0    0    0    390.0
1666  1665    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    390.0
1705     0    0    0    0    0    0    0    0    0    0      1705    0    0    0    0    0    0    0    0    0     67.0
1710     0    0    0    0    0    0    0    0    0    0      1710    0    0    0    0    0    0    0    0    0    245.0
1711  1710    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    245.0
1712  1711 1624    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2356.0
1715     0    0    0    0    0    0    0    0    0    0      1715    0    0    0    0    0    0    0    0    0    115.0
1716  1715    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    115.0
1800  1509 1468    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  79452.0
1812   352    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     41.0
1813  1812    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     41.0
1814  1813    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     41.0
1815     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1816  1815    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1817  1818 1816    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      6.0
1818     0    0    0    0    0    0    0    0    0    0       354    0    0    0    0    0    0    0    0    0      6.0
1820   384 1383    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     77.0
1821   369 1926    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     94.0
1822  1339  394    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1905   263    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2758.0
1906   389    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1907   388    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1908   387    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    259.0
1909  1906  320    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    454.0
1910   313    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      7.0
1911   391  318    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    799.0
1912  1911    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    799.0
1913   351  354    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    106.0
```

```
      1914      1913    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    106.0
      1915       350 1914    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    157.0
      1916      1262    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0       .0
      1917         0    0    0    0    0    0    0    0    0    0            305    0    0    0    0    0    0    0    0    0    103.0
      1919      1934  353    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0     41.0
      1920      1921    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    690.0
      1921       297 1917    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    690.0
      1922       300    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    177.0
      1923         0    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0       .0
      1924       290 1289    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   3653.0
      1925       378    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0     94.0
      1926       381    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0     77.0
      1927      1238    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    799.0
      1928      1611 1606    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0  73656.0
      1929      1712    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   2356.0
      1931      1491 1461    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   2258.0
      1932      1465    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0     93.0
      1933      1931    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   2258.0
      1934       360    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0       .0
      1935      1442 1916    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   2719.0
      1937       348    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0       .0
      1938         0    0    0    0    0    0    0    0    0    0           1480    0    0    0    0    0    0    0    0    0    732.0
      1939      1313  314    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0      7.0
      1940      1910 1408 1942    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0     88.0
      1941      1393    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0       .0
      1942         0    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0       .0
      1943       322    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    454.0
      1944      1365  370    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    170.0
      1945      1944    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    170.0
      1946      1376 1943    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    624.0
      1947      1599    0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0  86852.0
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  359 TO GUTTER  266 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  428 TO GUTTER  385 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  541 TO GUTTER  388 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  565 TO GUTTER  389 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
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 *** PEAK FLOWS, STAGES AND STORAGES OF GUTTERS AND DETENTION
DAMS ***

   CONVEYANCE     PEAK       STAGE       STORAGE      TIME
    ELEMENT      (CFS)       (FT)        (AC-FT)    (HR/MIN)

        1      1299.      3.9                   13   5.
        2       668.      3.7                    8  50.
        3       275.      1.0                    8  35.
        4       261.       .9                    8  40.
        5      1203.      3.7                   13   5.
        6      1176.      3.1                   13   5.
        7       149.      2.1                    8  30.
        8      2933.      (DIRECT FLOW)          9  35.
        9        76.      1.3                    8  25.
       10        33.       .3                    8  20.
       11        61.       .6                    8  10.
       12        27.       .3                    8  25.
       13       118.       .7                    8  20.
       14        64.       .5                    8  15.
       15      2256.      (DIRECT FLOW)          9  55.
       16      2239.      (DIRECT FLOW)          9  55.
       17       262.      1.4                    8  30.
       18       175.      1.5                    8  35.
       20        59.       .8                    8  15.
       21        31.       .5                    8  20.
       22       593.      2.7                    8  35.
       23       240.      2.1                    8  45.
       24       225.      1.9                    8  30.
       25        64.       .8                    8  30.
       26       148.      1.6                    8  25.
       27         9.       .2                    8   5.
       28       120.       .9                    8  25.
       29        23.       .5                    8  35.
       30        73.       .8                    8  25.
       31        57.       .8                    8  30.
       32        11.       .3                    8  10.
       33        45.       .7                    8  30.
       34        72.       .9                    8  45.
       35        26.       .4                    8  35.
       36        34.       .5                    8  50.
       37        71.      1.0                    8  45.
       38        27.       .4                    8  15.
       39        46.       .6                    8  45.
       40      2124.      4.9                   10   5.
       41        29.       .4                    8  30.
       42      2100.      4.5                   10   0.
       44      2618.      (DIRECT FLOW)         11  15.
       46      1952.      4.7                   10   0.
       48      2755.      6.4                    9  20.
       49       161.      1.0                    8   5.
       50      2753.      4.4                    9   5.
       51       306.      2.1                    8  15.
       52      2492.      4.8                    9   5.
       53        91.      1.3                    8  10.
       54        34.       .7                    8  10.
       55        40.       .8                    8  10.
       56       298.      1.4                    8  15.
       57       100.       .6                    8  10.
       58        31.       .7                    8   5.
       59      1922.      4.6                   10   0.
       60        29.       .4                    8  40.
       61        82.      1.0                    8  35.
       62       162.      1.0                    8  40.
       63        13.       .4                    8  15.
       64        19.       .7                    8  10.
       65        73.      1.3                    8  50.
       66         9.       .2                    8   5.
       67        68.       .8                    8  35.
       68       103.       .9                    8  35.
       69        35.       .5                    8  20.
       70        57.       .7                    8  35.
       71       100.      1.1                    8  40.
       72        33.       .6                    8  40.
       73        43.       .8                    8  20.
       74      1867.      4.6                    9  55.
       75       329.      2.1                    9  15.
       76        57.       .7                    8  40.
       77       370.      1.8                    9  20.
       78        13.       .3                    8  15.
       79       324.      1.8                    9  10.
       80       248.      1.0                    8  50.
       81       100.      1.0                    9   0.
       82        45.       .6                    8  25.
       83        11.       .4                    8  10.
       84        29.       .5                    8  15.
       85         7.       .4                    8  10.
       86        19.       .4                    8  10.
       87        61.       .9                    8  55.
       88        49.       .6                    8  30.
       89        35.       .8                    8  45.
       93         7.       .3                    8  10.
       94      1521.      3.8                   10  40.
       95      1382.      3.6                   10  40.
       96      1384.      4.6                   10  30.
       97       491.      2.7                    8  45.
       98        72.       .9                    8  20.
       99       444.      2.7                    8  35.
      100        75.      1.0                    8  45.
      101       367.      2.5                    8  30.
      102       244.      1.7                    8  30.
      103       224.      1.3                    8  20.
      104       178.      1.7                    8  20.
      105        44.       .8                    8  10.
      106        24.       .6                    8  10.
      107       119.      1.3                    8  25.
      108        12.       .4                    8  10.
      109       107.      1.1                    8  20.
      110        84.      1.0                    8  15.
      111        13.       .3                    8   5.
      112        38.       .7                    8  10.
      113        19.       .5                    8  10.
      114        12.       .4                    8  10.
      115         8.       .3                    8   5.
      116        34.       .8                    8  15.
      117        67.      1.2                    8  15.
      118        30.       .7                    8  10.
      119        76.      1.4                    8  15.
      120        43.       .9                    8  10.
      121        43.       .8                    8  45.
      122       171.      1.1                    8  35.
      123       111.      1.0                    8  25.
      124        63.       .8                    8  20.
      125        14.       .4                    8  10.
      126         6.       .2                    8  10.
      127        43.       .6                    8  15.
      128        35.       .5                    8  15.
      129      1338.      4.1                   10  25.
      130       133.      1.0                    8  25.
      131        43.       .5                    8  10.
      132        19.       .5                    8  10.
      133        74.       .8                    8  25.
      134        56.       .7                    8  20.
      135         8.       .3                    8  10.
      136        15.       .4                    8  10.
      137      1312.      3.4                   10  15.
      138        45.       .7                    8  30.
      139      1284.      3.3                   10  10.
      140       100.       .9                    8  35.
      141        21.       .6                    8  45.
      142        83.      1.0                    8  20
      143        30.       .6                    8  15.
      144        18.       .5                    8  10.
      145         6.       .3                    8   5.
      146        52.       .7                    8  20.
      147        16.       .4                    8  10.
      148        29.       .5                    8  10.
      149      1254.      3.2                   10   5.
      150        14.       .4                    8  30.
      151        32.       .6                    8  40.
      152      1243.      3.3                    9  50.
      153        15.       .3                    8  10.
      154      1318.      3.3                    9  25.
      155        15.       .2                    8  25.
      156      1314.      3.4                    9  20.
      157      1304.      3.5                    9   5.
      158        83.       .7                    8  25.
      159        20.       .4                    8  15.
      160        59.       .7                    8  15.
      161        22.       .5                    8  10.
      162        18.       .4                    8  10.
      163        63.       .5                    8  20.
      164         4.       .1                    8  10.
      165        38.       .6                    8  15.
      166        58.       .6                    8  15.
      167        16.       .4                    8  10.
      168        14.       .4                    8  10.
      169         9.       .3                    8  10.
      170        45.       .7                    8  40.
      171        29.       .5                    8  40.
      172      1198.      3.9                    9   5.
      173       331.      1.1                    8  50.
      174        20.       .5                    8  10.
      175       285.      1.1                    8  45.
      176       259.      1.4                    8  45.
      177        33.       .6                    8  20.
      178        24.       .6                    8  10.
      179        11.       .1                    8  10.
      180       178.      1.5                    8  30.
      181        23.       .5                    8  15.
      182       127.      1.0                    8  25.
      183        27.       .5                    8  20.
      184        80.       .7                    8  20.
      185        17.       .6                    8  10.
      186        57.       .7                    8  15.
      187       886.      3.0                    9  10.
      192       887.      2.9                    8  55.
      193        54.       .3                    8  30.
      194       328.      1.4                    8  40.
      195        12.       .3                    8  10.
      196        16.       .5                    8  15.
      198       263.      1.4                    8  40.
      199        25.       .6                    8  15.
      200        24.       .5                    8  15.
      201       240.      1.3                    8  25.
      202        13.       .4                    8  10.
      203        62.       .8                    8  10.
      204       178.      1.1                    8  20.
      205       565.      2.2                    8  55.
      206        14.       .1                    8  10.
      207       561.      2.2                    8  50.
      208        14.       .3                    8  10.
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  211      624.    2.8                 8 35.
  212      156.     .9                 8 25.
  213       84.     .8                 8 20.
  214       64.     .6                 8 15.
  215      471.    2.3                 8 30.
  216       84.     .5                 8 15.
  217       13.     .1                 8 10.
  218      309.    2.2                 8 20.
  219      405.    1.9                 8 20.
  220       92.     .8                 8 15.
  221       49.     .7                 8 10.
  222      262.    2.0                 8 20.
  223       57.     .5                 8 15.
  224      201.    1.9                 8 15.
  225       48.     .8                 8 10.
  226       75.     .5                 8 15.
  231     2119.    3.2                13 55.
  232     2126.    (DIRECT FLOW)      13 45.
  233     2122.    4.1                13 50.
  234       70.    2.3                 8 40.
  235       84.     .8                 8 20.
  236     2126.    (DIRECT FLOW)      13 45.
  237     2595.    (DIRECT FLOW)      13 20.
  238     2595.    (DIRECT FLOW)      13 20.
  239       84.    (DIRECT FLOW)       8 20.
  240     2507.    3.5                13  0.
  241     2552.    3.4                12 35.
  242     2722.    (DIRECT FLOW)      11 50.
  243     1961.    2.9                11 35.
  244      662.    2.1                 8 20.
  245     2104.    4.9                 8 55.
  246      865.    2.5                 8 40.
  247      292.    1.2                 8 35.
  248      248.    1.1                 8 35.
  249      165.    1.0                 8 25.
  250      409.    1.8                 8 35.
  251     2121.    (DIRECT FLOW)      13 20.
  252     2106.    (DIRECT FLOW)      13 45.
  261     2618.    (DIRECT FLOW)      11 15.
  262     1115.    1.8                11 25.
  263     1115.    (DIRECT FLOW)      11 25.
  264      906.    1.4                11 35.
  265      906.    (DIRECT FLOW)      11 35.
  266      201.    (DIRECT FLOW)      11 25.
  267      939.    (DIRECT FLOW)      11 40.
  268      909.     .1           21.3 11 55.
  269      243.    (DIRECT FLOW)      11 35.
  270     2598.    5.0                14 10.
  271     2600.    (DIRECT FLOW)      14  5.
  280      437.    (DIRECT FLOW)       8 20.
  289      723.    4.8                12 10.
  290      654.    4.5                12  0.
  291      909.    (DIRECT FLOW)      11 55.
  292      250.    1.2                12  5.
  293      334.    5.8                 8 20.
  294      437.    (DIRECT FLOW)       8 20.
  295        0.     .1            3.0 17 25.
  296        0.    (DIRECT FLOW)      16 25.
  297      394.    3.2                 8 15.
  298       72.     .1            1.0  8 20.
  299       79.     .7                 8 10.
  300       10.     .1           11.4 10  5.
  301      166.     .8                 8 10.
  303       89.    (DIRECT FLOW)       8 10.
  304       34.    1.0                 8 25.
  308      260.    (DIRECT FLOW)       8 35.
  310       17.    (DIRECT FLOW)       8 40.
  311      424.    (DIRECT FLOW)       8 30.
  312      306.    4.1                 8 35.
  313      268.    (DIRECT FLOW)       8 35.
  314      260.    5.0                 8 35.
  315       34.     .7                 8 20.
  316       47.     .8                 8 15.
  317       80.    (DIRECT FLOW)       8 15.
  318       74.    2.3                 8 40.
  319      540.    3.3                 9 20.
  320      448.    2.3                 9 10.
  321       44.     .7                 8 10.
  322      477.    (DIRECT FLOW)      13 45.
  323       11.    (DIRECT FLOW)       8  5.
  324      520.    (DIRECT FLOW)       8 35.
  325      520.    (DIRECT FLOW)       8 35.
  326      188.    3.4                 8 25.
  327      114.    2.7                 8 25.
  328      121.    (DIRECT FLOW)       8 15.
  329       47.    1.6                 8 55.
  330       50.    (DIRECT FLOW)       8 50.
  331       28.    (DIRECT FLOW)       8 40.
  332       30.    (DIRECT FLOW)       8 45.
  333       23.     .6                 8 45.
  334        7.     .4                 8 15.
  335       28.     .9                 8 25.
  336       17.    (DIRECT FLOW)       8 45.
  337       60.     .9                 8 15.
  338       37.    1.5                 8 30.
  339       26.    (DIRECT FLOW)       8 40.
  340       61.    (DIRECT FLOW)       8 35.
  341       66.    (DIRECT FLOW)       8 30.
  342       67.    (DIRECT FLOW)       8 30.
  343      324.    (DIRECT FLOW)       8 30.
  344       76.    (DIRECT FLOW)       8 15.
  345      175.    1.2                 8 15.
  346       99.     .9                 8 10.
  347      253.    4.6                 8 15.
  348       29.    (DIRECT FLOW)       8 40.
  349        4.     .2                 8 20.
  350       75.    2.9                 8 15.
  351      149.    2.8                12 50.
  352      192.     .1            9.9 12 45.
  353       46.     .9                 8 10.
  354       43.    1.1                12 50.
  355       13.    1.3                 8 10.
  356      324.     .1            9.5  8 30.
  357      384.    (DIRECT FLOW)       8 35.
  358      427.    3.6                 8 35.
  359      443.    (DIRECT FLOW)       8 15.
  360      250.    (DIRECT FLOW)      12  5.
  361       41.    (DIRECT FLOW)       8  5.
  362      263.    (DIRECT FLOW)       8 30.
  363        7.     .4                 8 15.
  366       76.     .9                 8 15.
  367       35.     .7                 8 10.
  368       86.    (DIRECT FLOW)       8 10.
  369       28.     .6                 8 10.
  370       90.    (DIRECT FLOW)       8  5.
  371      130.    1.6                 8 20.
  372       61.    (DIRECT FLOW)       8 15.
  373        7.     .7                 8 25.
  374       36.    1.4                11 45.
  375      201.    (DIRECT FLOW)      11 35.
  376      201.    3.6                11 35.
  377       96.    2.9                11 40.
  378      170.    (DIRECT FLOW)      11 30.
  379      102.    (DIRECT FLOW)       8 15.
  380      102.    2.9                 8 15.
  381       81.    (DIRECT FLOW)       8 15.
  382       81.    2.7                 8 15.
  383       82.    (DIRECT FLOW)       8 15.
  384       82.    3.5                 8 15.
  385        1.    (DIRECT FLOW)       8 40.
  386        2.    (DIRECT FLOW)       8 40.
  387       39.    (DIRECT FLOW)       8 10.
  388      408.    (DIRECT FLOW)       8 50.
  389      473.    (DIRECT FLOW)      13 20.
  390      611.    (DIRECT FLOW)       8 50.
  391      550.    5.6                 8 45.
  392      561.    (DIRECT FLOW)       8 35.
  393      427.    (DIRECT FLOW)       8 35.
  394        1.     .2                 8 45.
  395        2.    (DIRECT FLOW)       8 40.
  396      261.    (DIRECT FLOW)       8 35.
  397     1172.     .1          755.5 13  0.
  398      261.     .1            2.4  8 35.
  399     2598.    (DIRECT FLOW)      14 10.
 1238      203.    (DIRECT FLOW)       8 50.
 1262      620.    (DIRECT FLOW)      11 20.
 1267      663.    (DIRECT FLOW)      11 35.
 1289       74.    (DIRECT FLOW)      11 35.
 1290      656.    (DIRECT FLOW)      11 55.
 1291      909.    (DIRECT FLOW)      11 55.
 1293      334.    (DIRECT FLOW)       8 20.
 1294      240.    1.4                11 45.
 1295      104.    (DIRECT FLOW)       8 25.
 1296        0.    (DIRECT FLOW)      16 25.
 1301       28.    (DIRECT FLOW)       8 25.
 1302       28.    (DIRECT FLOW)       8 25.
 1303       28.    (DIRECT FLOW)       8 25.
 1304        0.    (DIRECT FLOW)       8 25.
 1305        0.    (DIRECT FLOW)       8 45.
 1306       30.    (DIRECT FLOW)       8 50.
 1307        0.    (DIRECT FLOW)       8 45.
 1308       30.    (DIRECT FLOW)       8 45.
 1309      121.    (DIRECT FLOW)       8 15.
 1310        9.    (DIRECT FLOW)       8 45.
 1311      121.    (DIRECT FLOW)       8 15.
 1312        0.    (DIRECT FLOW)       8 15.
 1313        9.    (DIRECT FLOW)       8 40.
 1320      420.    (DIRECT FLOW)       9  5.
 1321        0.    (DIRECT FLOW)       8  5.
 1323       11.    (DIRECT FLOW)       8  5.
 1325      354.    (DIRECT FLOW)       8 40.
 1329       36.     .7                 8 15.
 1330       70.    2.3                 8 25.
 1331       28.    (DIRECT FLOW)       8 40.
 1332       70.    (DIRECT FLOW)       8 25.
 1333       32.    (DIRECT FLOW)       8 35.
 1334        5.    (DIRECT FLOW)       8 30.
 1335        1.    (DIRECT FLOW)       8 30.
 1336       17.    (DIRECT FLOW)       8 45.
 1337       44.    (DIRECT FLOW)       8 10.
 1338       25.    (DIRECT FLOW)       8 10.
 1339       25.    (DIRECT FLOW)       8 20.
 1340       61.    (DIRECT FLOW)       8 35.
 1341       66.    (DIRECT FLOW)       8 30.
 1342       67.    (DIRECT FLOW)       8 30.
 1343      324.    (DIRECT FLOW)       8 30.
 1348       29.    (DIRECT FLOW)       8 40.
 1357      384.    (DIRECT FLOW)       8 35.
 1360        1.    (DIRECT FLOW)       8 20.
 1361       22.    1.7                 8 15.
 1362      258.    (DIRECT FLOW)       8 30.
 1363       19.    (DIRECT FLOW)       8 10.
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1364        44.        2.1                      8  20.
1365       107.        (DIRECT FLOW)            8  30.
1366         1.        (DIRECT FLOW)            8  20.
1367         0.        (DIRECT FLOW)            8  20.
1368        70.        (DIRECT FLOW)            8  25.
1369        70.        (DIRECT FLOW)            8  25.
1370        68.        2.2                      8  35.
1371         0.        (DIRECT FLOW)            8  25.
1372         0.        (DIRECT FLOW)            8  25.
1373       139.        (DIRECT FLOW)            8  25.
1374        36.        (DIRECT FLOW)           11  35.
1375       139.        (DIRECT FLOW)            8  25.
1376       139.        2.2                      8  30.
1377         0.        (DIRECT FLOW)            8  25.
1378       170.        (DIRECT FLOW)           11  30.
1381        81.        (DIRECT FLOW)            8  15.
1382         0.        (DIRECT FLOW)           16  30.
1383         0.        (DIRECT FLOW)           16  30.
1386         2.        (DIRECT FLOW)            8  40.
1387        39.        (DIRECT FLOW)            8  10.
1392       520.        (DIRECT FLOW)            8  35.
1393        43.        (DIRECT FLOW)            8  40.
1396       261.        (DIRECT FLOW)            8  35.
1401        30.        (DIRECT FLOW)            8  35.
1402         0.        (DIRECT FLOW)            8  35.
1403        20.        (DIRECT FLOW)           13  45.
1404       165.        (DIRECT FLOW)           11  35.
1405        81.        (DIRECT FLOW)            8  15.
1406       102.        (DIRECT FLOW)            8  15.
1407         0.        (DIRECT FLOW)            8  40.
1408        51.        (DIRECT FLOW)            8  15.
1409         8.        (DIRECT FLOW)            8  40.
1410        24.        (DIRECT FLOW)            8   5.
1411      2781.        4.5                     10  20.
1412      2781.        (DIRECT FLOW)           10  20.
1413      2781.        (DIRECT FLOW)           10  20.
1414      1468.        (DIRECT FLOW)           10  25.
1415        38.        (DIRECT FLOW)            8  10.
1416       318.        2.6                      8  55.
1420        24.        (DIRECT FLOW)            8  20.
1421      3199.        4.9                     10   0.
1423      3199.        (DIRECT FLOW)           10   0.
1424      2835.        (DIRECT FLOW)           10   0.
1425        11.        (DIRECT FLOW)            8   0.
1426        35.         .9                      8  15.
1427      1998.        (DIRECT FLOW)           11  15.
1428       356.        2.2                     10  15.
1429       505.        (DIRECT FLOW)           10  10.
1430        12.        (DIRECT FLOW)            8   0.
1431        11.         .5                      8   5.
1435        30.        (DIRECT FLOW)            8   5.
1436        22.        1.0                      8  10.
1438        32.        (DIRECT FLOW)            8  10.
1440        13.        (DIRECT FLOW)            8   0.
1441      3197.        5.0                     10   0.
1442       499.        1.7                     11  20.
1445        22.        (DIRECT FLOW)            8   0.
1446        15.         .7                      8  10.
1450        24.        (DIRECT FLOW)            8   5.
1451      3274.        4.7                      9  45.
1453      3276.        (DIRECT FLOW)            9  45.
1455       111.        (DIRECT FLOW)            8  10.
1456        89.         .5                      8  25.
1457        89.        (DIRECT FLOW)            8  25.
1460        65.        (DIRECT FLOW)            8   5.
1461        57.        1.4                      8  10.
1465        32.        (DIRECT FLOW)            8  10.
1467       166.        (DIRECT FLOW)            8  20.
1468       166.        1.8                      8  20.
1480       497.        2.8                      8  15.
1481         5.         .0           79.5      25   0.
1482         5.        (DIRECT FLOW)           24  40.
1490       146.        (DIRECT FLOW)            8  10.
1491       121.        2.3                      8  55.
1500       179.        (DIRECT FLOW)            8  10.
1501       131.        2.1                      8  30.
1505       178.        (DIRECT FLOW)            8  10.
1506      1206.        3.2                     11  25.
1507      2595.        (DIRECT FLOW)           11   5.
1508      1405.        (DIRECT FLOW)           11   5.
1509      1313.        (DIRECT FLOW)           10  20.
1510        29.        (DIRECT FLOW)            8  15.
1511      1912.        3.4                     11   5.
1512      2585.        4.2                     11  15.
1513      1912.        (DIRECT FLOW)           11   5.
1514       507.        (DIRECT FLOW)           11   5.
1515        18.        (DIRECT FLOW)            8   5.
1517        23.         .8                      8  25.
1520        74.        (DIRECT FLOW)            8  10.
1521      1965.        3.3                     10  40.
1522      1991.        (DIRECT FLOW)           10  45.
1525        35.        (DIRECT FLOW)            8  15.
1526       501.        2.6                     10  15.
1528       364.        (DIRECT FLOW)           10   5.
1530        61.        (DIRECT FLOW)            8  10.
1531       166.        1.5                      8  40.
1532       558.        (DIRECT FLOW)           10  15.
1533      1994.        (DIRECT FLOW)           10  30.
1534      1450.        2.3                     10  35.
1537       555.        2.6                     10  20.
1541       127.        (DIRECT FLOW)            8   5.
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1542        82.        1.4                      8  25.
1544      1984.        (DIRECT FLOW)           10  40.
1545        51.        (DIRECT FLOW)            8  10.
1546       133.        1.5                      8  35.
1548      1979.        1.7                     10  45.
1550       201.        (DIRECT FLOW)            8  20.
1551       267.        2.1                      8  40.
1553       320.        (DIRECT FLOW)            8  40.
1556        19.        (DIRECT FLOW)            8  10.
1557        53.        1.2                      8  40.
1560        68.        (DIRECT FLOW)            8  15.
1561        64.        1.0                      8  20.
1563       108.        (DIRECT FLOW)            8  20.
1565        47.        (DIRECT FLOW)            8  15.
1566        44.         .8                      8  20.
1570        47.        (DIRECT FLOW)            8  15.
1571        46.         .4                      8  20.
1575       131.        (DIRECT FLOW)            8  15.
1576       112.        2.0                      8  25.
1599      2617.        (DIRECT FLOW)           14  10.
1600         5.        (DIRECT FLOW)            8   0.
1601      2995.        4.1                      9  35.
1603      3323.        (DIRECT FLOW)            9  30.
1605        18.        (DIRECT FLOW)            8  10.
1606       311.        2.1                      8  25.
1610        24.        (DIRECT FLOW)            8   5.
1611      2914.        3.9                      9  35.
1615        39.        (DIRECT FLOW)            8   0.
1616        28.         .9                      8  10.
1620        53.        (DIRECT FLOW)            8   5.
1621       410.        2.8                      8  45.
1623       422.        (DIRECT FLOW)            8  45.
1624       422.        2.7                      8  50.
1625       144.        (DIRECT FLOW)            8  15.
1626      2849.        4.1                      9  25.
1628      2971.        (DIRECT FLOW)            9  20.
1630        66.        (DIRECT FLOW)            8  15.
1631       187.        1.3                      8  45.
1635       169.        (DIRECT FLOW)            8  15.
1636       155.        1.4                      8  20.
1640       132.        (DIRECT FLOW)            8  15.
1641        91.        2.5                      8  35.
1643       141.        (DIRECT FLOW)            8  35.
1645        57.        (DIRECT FLOW)            8  25.
1646        50.         .9                      8  35
1650       250.        (DIRECT FLOW)            8  15
1651       308.        2.2                      8  25.
1653       462.        (DIRECT FLOW)            8  30.
1655       199.        (DIRECT FLOW)            8  25.
1656       170.        1.7                      8  40
1660       112.        (DIRECT FLOW)            8  10.
1661        87.        1.3                      8  25.
1665       361.        (DIRECT FLOW)            8   5.
1666       324.        2.1                      8  15.
1705         8.        (DIRECT FLOW)            8   5.
1710        39.        (DIRECT FLOW)            8   5.
1711        34.         .7                      8  25.
1712       450.        (DIRECT FLOW)            8  50.
1715        31.        (DIRECT FLOW)            8  15.
1716        19.         .6                      8  50.
1800      1411.        (DIRECT FLOW)           10  15.
1812       192.        (DIRECT FLOW)           12  45.
1813       192.        (DIRECT FLOW)           12  45.
1814       149.        (DIRECT FLOW)           12  45.
1815        43.        (DIRECT FLOW)           12  50.
1816        42.         .8                     12  50.
1817        43.        (DIRECT FLOW)           12  50.
1818        16.         .7                      8   5.
1820        82.        (DIRECT FLOW)            8  15.
1821       104.        (DIRECT FLOW)            8  15.
1822        26.        (DIRECT FLOW)            8  40.
1905       914.        (DIRECT FLOW)           11  25.
1906       442.         .7                     13  45.
1907       380.        2.3                      9   5.
1908        39.        1.4                      8  15.
1909       477.        (DIRECT FLOW)           13  45.
1910       260.        (DIRECT FLOW)            8  35.
1911       622.        (DIRECT FLOW)            8  45.
1912       611.        5.4                      8  50.
1913       192.        (DIRECT FLOW)           12  50.
1914       191.        3.3                     12  55.
1915       194.        (DIRECT FLOW)           12  55.
1916       616.        1.6                     11  25.
1917        23.         .8                      8  20.
1919       248.        (DIRECT FLOW)           12  15.
1920       403.        3.7                      8  20.
1921       416.        (DIRECT FLOW)            8  15.
1922        10.         .3                     10   5.
1923       253.        (DIRECT FLOW)           12   0.
1924       727.        (DIRECT FLOW)           12   0.
1925        96.        (DIRECT FLOW)           11  30.
1926        80.        (DIRECT FLOW)            8  15.
1927       203.        3.6                      9   0.
1928      2997.        (DIRECT FLOW)            9  30.
1929       444.        2.0                      8  55.
1931       139.        (DIRECT FLOW)            8  20.
1932        28.         .6                      8  15.
1933       139.        1.9                      8  20.
1934       246.        1.2                     12  15.
1935      1115.        (DIRECT FLOW)           11  25.
1937         1.        (DIRECT FLOW)            8  40.
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     1938        504.        (DIRECT FLOW)         8   10.
     1939        268.        (DIRECT FLOW)         8   35.
     1940        305.        (DIRECT FLOW)         8   30.
     1941         43.          .8                  8   40.
     1942          9.        (DIRECT FLOW)         8   45.
     1943        476.        3.0                  13   50.
     1944        139.        4.9                   8   25.
     1945        139.        (DIRECT FLOW)         8   25.
     1946        516.        (DIRECT FLOW)         9   10.
     1947       2617.        (DIRECT FLOW)        14   10.
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UDSWMM

50-YEAR MODEL

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URBAN DRAINAGE STORM WATER MANAGEMENT MODEL -  32 BIT VERSION 1998
         REVISED BY UNIVERSITY OF COLORADO AT DENVER

 *** ENTRY MADE TO RUNOFF MODEL ***


 model sbc_ltd
 50-year model

0NUMBER OF TIME STEPS  865
0INTEGRATION TIME INTERVAL (MINUTES)    5.00

  1.0 PERCENT OF IMPERVIOUS AREA HAS ZERO DETENTION DEPTH
0FOR   288 RAINFALL STEPS, THE TIME INTERVAL IS   5.00 MINUTES
0FOR RAINGAGE NUMBER   1   RAINFALL HISTORY IN INCHES PER HOUR

       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .07       .08       .08       .08       .08
       .08       .08       .08       .08       .09       .09       .09       .09       .09       .09
       .09       .10       .10       .10       .10       .10       .11       .11       .11       .11
       .12       .12       .12       .13       .13       .13       .14       .14       .15       .15
       .16       .16       .17       .18       .18       .19       .20       .21       .23       .24
       .26       .28       .30       .33       .36       .41       .46       .52       .61       .73
       .89      1.13      1.49      2.06      2.99      3.88      3.58      2.47      1.74      1.29
      1.00       .80       .66       .56       .49       .43       .38       .35       .32       .29
       .27       .25       .23       .22       .21       .20       .19       .18       .17       .17
       .16       .15       .15       .14       .14       .14       .13       .13       .12       .12
       .12       .12       .11       .11       .11       .11       .10       .10       .10       .10
       .10       .09       .09       .09       .09       .09       .09       .08       .08       .08
       .08       .08       .08       .08       .08       .07       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .03       .03       .03       .03
       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
       .03       .03       .03       .03       .03       .03       .03       .03
0FOR RAINGAGE NUMBER   2   RAINFALL HISTORY IN INCHES PER HOUR

       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .07       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .07       .07       .08       .08       .08
       .08       .08       .08       .08       .08       .08       .08       .08       .08       .09
       .09       .09       .09       .09       .09       .09       .09       .09       .10       .10
       .10       .10       .10       .10       .11       .11       .11       .11       .11       .11
       .12       .12       .12       .12       .13       .13       .13       .14       .14       .14
       .15       .15       .16       .16       .17       .18       .19       .19       .20       .22
       .23       .25       .27       .29       .32       .35       .39       .45       .52       .62
       .76       .96      1.28      1.79      2.66      3.66      3.26      2.17      1.50      1.10
       .85       .68       .57       .48       .42       .37       .33       .30       .28       .26
       .24       .22       .21       .20       .19       .18       .17       .17       .16       .16
       .15       .15       .14       .14       .13       .13       .13       .13       .12       .12
       .12       .12       .11       .11       .11       .11       .11       .10       .10       .10
       .10       .10       .10       .10       .09       .09       .09       .09       .09       .09
       .09       .09       .09       .08       .08       .08       .08       .08       .08       .08
       .08       .08       .08       .08       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .07       .07       .07       .07       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04
0FOR RAINGAGE NUMBER   3   RAINFALL HISTORY IN INCHES PER HOUR

       .06       .06       .06       .06       .06       .06       .06       .06       .06       .07
       .07       .07       .07       .07       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .08       .08       .08       .08       .08       .08       .08
       .08       .08       .08       .08       .09       .09       .09       .09       .09       .09
       .09       .09       .09       .10       .10       .10       .10       .10       .10       .11
       .11       .11       .11       .11       .11       .12       .12       .12       .12       .13
       .13       .13       .13       .14       .14       .14       .15       .15       .16       .16
       .17       .17       .18       .19       .19       .20       .21       .22       .23       .25
       .26       .28       .30       .32       .35       .39       .43       .48       .54       .62
       .73       .88      1.09      1.42      1.98      3.24      2.46      1.65      1.23       .97
       .80       .67       .58       .51       .45       .40       .37       .34       .31       .29
       .27       .25       .24       .23       .22       .21       .20       .19       .18       .18
       .17       .16       .16       .16       .15       .15       .14       .14       .14       .13
       .13       .13       .12       .12       .12       .12       .12       .11       .11       .11
       .11       .11       .10       .10       .10       .10       .10       .10       .10       .09
       .09       .09       .09       .09       .09       .09       .09       .08       .08       .08
       .08       .08       .08       .08       .08       .08       .08       .08       .08       .07
       .07       .07       .07       .07       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
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       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04
0FOR RAINGAGE NUMBER    4   RAINFALL HISTORY IN INCHES PER HOUR

       .07       .07       .07       .07       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .07       .07       .08       .08       .08
       .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
       .08       .09       .09       .09       .09       .09       .09       .09       .09       .09
       .09       .09       .10       .10       .10       .10       .10       .10       .10       .10
       .11       .11       .11       .11       .11       .11       .12       .12       .12       .12
       .13       .13       .13       .13       .14       .14       .14       .15       .15       .15
       .16       .16       .17       .18       .18       .19       .20       .21       .22       .23
       .24       .26       .28       .30       .32       .35       .39       .43       .49       .56
       .66       .79       .97      1.26      1.74      2.78      2.14      1.46      1.10       .87
       .72       .60       .52       .46       .41       .37       .34       .31       .29       .27
       .25       .24       .22       .21       .20       .19       .19       .18       .17       .17
       .16       .16       .15       .15       .14       .14       .14       .13       .13       .13
       .13       .12       .12       .12       .12       .12       .11       .11       .11       .11
       .11       .11       .10       .10       .10       .10       .10       .10       .10       .10
       .09       .09       .09       .09       .09       .09       .09       .09       .09       .09
       .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
       .08       .08       .08       .08       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .08       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05
0FOR RAINGAGE NUMBER    5   RAINFALL HISTORY IN INCHES PER HOUR

       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .07       .07       .07       .07       .07       .07       .07       .07
       .08       .08       .08       .08       .08       .08       .09       .09       .09       .09
       .09       .10       .10       .10       .11       .11       .11       .12       .12       .12
       .13       .13       .14       .14       .15       .16       .16       .17       .18       .19
       .20       .22       .23       .25       .27       .29       .32       .36       .41       .47
       .54       .65       .80      1.02      1.39      2.13      1.68      1.18       .90       .72
       .59       .50       .44       .38       .34       .31       .28       .26       .24       .22
       .21       .20       .18       .18       .17       .16       .15       .15       .14       .13
       .13       .13       .12       .12       .11       .11       .11       .10       .10       .10
       .10       .09       .09       .09       .09       .09       .08       .08       .08       .08
       .08       .08       .07       .07       .07       .07       .07       .07       .07       .07
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .03       .03       .03       .03       .03       .03       .03       .03       .03
       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
       .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
       .03       .03       .03       .03       .03       .03       .03       .03       .03       .02
       .02       .02       .02       .02       .02       .02       .02       .02       .02       .02
       .02       .02       .02       .02       .02       .02       .02       .02
1


 model sbc_ltd
 50-year model


 SUBAREA   GUTTER    WIDTH     AREA    PERCENT     SLOPE     RESISTANCE FACTOR  SURFACE STORAGE(IN)    INFILTRATION RATE(IN/HR)  GAGE
 NUMBER  OR MANHOLE   (FT)      (AC)    IMPERV.    (FT/FT)      IMPERV.    PERV.    IMPERV.     PERV.  MAXIMUM MINIMUM DECAY RATE  NC
   227       226      7480.   286.0      30.0      .4076       .300      .500      .300      .470     3.90     .50     .00024     5
   226       225      6240.   152.0      30.0      .5701       .300      .500      .300      .470     3.90     .50     .00024     5
   225       224      8440.   488.0      20.0      .3704       .300      .500      .300      .470     4.50     .60     .00010     5
   224       223     11920.   309.0      20.0      .2882       .300      .500      .300      .450     3.50     .20     .00100     5
   222       221     13040.   250.0      20.0      .5139       .300      .500      .300      .450     3.90     .50     .00024     5
   221       220     15160.   506.0      20.0      .4510       .300      .500      .300      .450     3.50     .20     .00100     5
   219       218      3320.    44.0       6.0      .2945       .300      .500      .300      .470     3.90     .50     .00024     5
   220       219     10200.   437.0       5.0      .3544       .300      .500      .300      .480     4.50     .60     .00010     5
   223       222      2280.   182.0       6.0      .4444       .300      .500      .300      .470     4.80     .50     .00010     5
   214       216     16320.   505.0      20.0      .4409       .300      .500      .300      .450     3.90     .50     .00024     5
   212       214     13760.   482.0      15.0      .4325       .300      .500      .300      .450     3.90     .50     .00024     5
   211       213     11800.   511.0      20.0      .3390       .300      .500      .300      .440     3.50     .20     .00100     5
   210       212     12200.   588.0       5.0      .2915       .300      .500      .300      .420     4.80     .50     .00010     5
   213       215      6480.   539.0       6.0      .3847       .300      .400      .150      .420     3.90     .50     .00024     5
   215       217      9720.   245.0       5.0      .2985       .250      .450      .300      .500     3.90     .50     .00024     5
   209       211      6800.   284.0       6.0      .4718       .300      .400      .150      .460     3.90     .50     .00024     5
   185       186      8520.   461.0      15.0      .2842       .300      .500      .300      .450     4.80     .50     .00010     5
   184       185      7440.   232.0       8.0      .3661       .300      .500      .300      .400     3.90     .50     .00024     5
   182       183     16000.   599.0       6.0      .1690       .300      .500      .300      .450     4.50     .60     .00010     5
   180       181     13280.   438.0       6.0      .2725       .300      .500      .300      .450     4.50     .60     .00010     5
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183	184	7080.	217.0	6.0	.2820	.300	.500	.300	.400	3.90	.50	.00024	5
181	182	9200.	507.0	7.0	.2836	.300	.500	.300	.450	4.50	.60	.00010	5
179	180	9040.	501.0	5.0	.2840	.250	.450	.300	.500	3.50	.20	.00100	4
204	204	13440.	854.0	30.0	.3985	.300	.500	.300	.470	3.90	.50	.00024	5
203	203	7000.	258.0	25.0	.4793	.300	.500	.300	.470	3.90	.50	.00024	5
199	201	15400.	843.0	5.0	.3343	.300	.500	.300	.470	4.50	.60	.00010	5
198	200	14440.	542.0	5.0	.2842	.300	.500	.300	.450	3.90	.50	.00024	5
200	202	7640.	250.0	5.0	.2900	.300	.500	.300	.500	4.80	.50	.00010	5
196	198	14440.	797.0	5.0	.4198	.250	.450	.300	.450	3.90	.50	.00024	5
195	196	14640.	387.0	5.0	.2370	.250	.450	.300	.500	4.50	.60	.00010	5
197	199	18040.	634.0	5.0	.2744	.250	.450	.300	.450	3.90	.50	.00024	5
190	195	9520.	251.0	5.0	.2833	.250	.450	.300	.470	3.90	.50	.00024	5
189	194	15120.	847.0	9.0	.3487	.150	.400	.300	.500	4.50	.50	.00010	4
208	208	8520.	275.0	5.0	.3120	.250	.450	.300	.450	3.90	.50	.00024	5
207	207	8560.	772.0	6.0	.4592	.150	.400	.300	.430	3.50	.20	.00100	5
206	206	7720.	250.0	5.0	.3693	.250	.450	.300	.470	3.90	.50	.00024	5
205	205	9800.	395.0	7.0	.4113	.150	.400	.300	.450	3.90	.50	.00024	4
187	192	1540.	115.0	6.0	.5495	.150	.400	.300	.430	3.50	.20	.00100	4
188	193	8960.	273.0	9.0	.3629	.150	.400	.300	.400	3.50	.20	.00100	4
186	187	19200.	1018.0	8.0	.3200	.150	.400	.300	.450	3.90	.50	.00024	4
177	178	13000.	392.0	7.0	.2685	.150	.400	.300	.450	3.90	.50	.00024	5
178	179	7720.	211.0	5.0	.3191	.250	.450	.300	.420	3.50	.20	.00100	5
175	176	15040.	716.0	5.0	.3492	.250	.450	.300	.400	3.50	.20	.00100	4
176	177	12040.	233.0	6.0	.2396	.250	.450	.300	.450	3.90	.50	.00024	4
174	175	3800.	78.0	5.0	.2684	.250	.450	.300	.450	3.90	.50	.00024	4
173	174	8120.	188.0	8.0	.3071	.150	.400	.300	.430	3.90	.50	.00024	4
172	173	11520.	230.0	5.0	.3401	.250	.450	.300	.400	3.50	.20	.00100	4
171	172	3720.	73.0	7.0	.2083	.150	.400	.300	.450	3.90	.50	.00024	4
167	168	7240.	259.0	5.0	.2386	.300	.500	.300	.500	3.90	.50	.00024	5
168	169	6280.	175.0	5.0	.2720	.300	.500	.300	.500	3.90	.50	.00024	5
164	165	13840.	350.0	6.0	.3519	.300	.500	.300	.470	3.90	.50	.00024	4
166	167	10720.	215.0	6.0	.3188	.300	.500	.300	.500	3.90	.50	.00024	4
165	166	1040.	99.0	5.0	.2782	.300	.500	.300	.500	3.90	.50	.00024	4
170	171	8840.	139.0	5.0	.2244	.250	.450	.300	.400	3.50	.20	.00100	4
169	170	9680.	332.0	5.0	.2538	.250	.450	.300	.400	3.50	.20	.00100	4
162	163	5280.	112.0	5.0	.2935	.250	.450	.300	.470	3.90	.50	.00100	4
163	164	8000.	76.0	5.0	.3938	.300	.500	.300	.450	3.90	.50	.00024	4
156	157	1660.	103.0	7.0	.3821	.250	.450	.300	.460	3.50	.20	.00100	4
160	161	8760.	341.0	5.0	.3148	.300	.500	.300	.470	3.90	.50	.00100	4
161	162	11600.	362.0	5.0	.3269	.300	.500	.300	.470	3.90	.50	.00100	5
158	159	12760.	476.0	5.0	.2852	.300	.500	.300	.470	3.90	.50	.00100	5
159	160	6720.	342.0	6.0	.3021	.300	.500	.300	.470	3.90	.50	.00100	4
155	156	9960.	523.0	6.0	.3280	.250	.450	.300	.400	3.90	.50	.00024	4
157	158	11400.	344.0	5.0	.2728	.250	.450	.300	.460	3.90	.50	.00024	4
152	153	8760.	249.0	5.0	.2831	.300	.500	.300	.500	3.90	.50	.00024	4
153	154	5760.	249.0	6.0	.3299	.250	.450	.300	.450	3.90	.50	.00024	4
154	155	2180.	161.0	5.0	.3792	.300	.500	.300	.400	3.50	.20	.00100	4
148	149	6440.	214.0	6.0	.3001	.250	.450	.300	.400	3.50	.20	.00100	4
149	150	5560.	58.0	6.0	.1610	.250	.450	.300	.400	3.50	.20	.00100	4
150	151	8240.	189.0	5.0	.2338	.250	.450	.300	.400	3.50	.20	.00100	4
151	152	13960.	501.0	8.0	.3572	.250	.450	.300	.450	3.90	.50	.00024	4
145	146	6930.	318.0	5.0	.2782	.300	.500	.300	.460	3.90	.50	.00024	4
146	147	11200.	283.0	5.0	.2727	.250	.450	.300	.500	3.90	.50	.00024	4
147	148	5440.	453.0	5.0	.3306	.250	.450	.300	.470	3.90	.50	.00024	4
141	142	4160.	103.0	6.0	.2843	.250	.450	.300	.450	3.90	.50	.00024	4
142	143	9680.	187.0	5.0	.3565	.250	.450	.300	.470	3.90	.50	.00024	4
143	144	4400.	274.0	5.0	.3218	.300	.500	.300	.460	3.90	.50	.00024	4
144	145	4320.	79.0	5.0	.2164	.300	.500	.300	.500	3.90	.50	.00024	4
139	140	8640.	184.0	6.0	.3125	.250	.450	.300	.460	3.90	.50	.00024	4
140	141	7600.	132.0	5.0	.2104	.250	.450	.300	.450	3.50	.20	.00100	4
136	137	6200.	142.0	15.0	.2104	.150	.400	.150	.470	3.50	.20	.00100	4
137	138	8780.	383.0	10.0	.0823	.150	.400	.150	.420	3.50	.20	.00100	4
138	139	3760.	70.0	15.0	.1898	.250	.450	.150	.450	3.90	.50	.00024	4
133	134	20040.	530.0	8.0	.3229	.250	.450	.300	.460	3.90	.50	.00024	4
134	135	8160.	160.0	5.0	.2440	.250	.450	.300	.450	3.90	.50	.00024	5
135	136	6000.	282.0	5.0	.2300	.250	.450	.300	.460	3.90	.50	.00024	5
130	131	9720.	290.0	12.0	.3042	.150	.400	.150	.500	3.90	.50	.00024	4
131	132	9120.	213.0	8.0	.1964	.250	.450	.300	.470	3.90	.50	.00024	4
132	133	15440.	496.0	7.0	.1806	.250	.450	.300	.470	3.90	.50	.00024	4
128	129	7040.	151.0	12.0	.5988	.300	.500	.200	.450	3.90	.50	.00024	4
129	130	6720.	110.0	15.0	.2077	.150	.400	.150	.450	3.90	.50	.00024	4
124	125	7600.	220.0	5.0	.1948	.300	.500	.300	.500	3.90	.50	.00024	4
125	126	6840.	88.0	5.0	.2679	.300	.500	.300	.500	3.90	.50	.00024	4
126	127	16000.	548.0	8.0	.2341	.250	.450	.300	.480	3.90	.50	.00024	4
120	124	15040.	397.0	13.0	.1127	.150	.400	.150	.500	3.90	.50	.00024	4
127	128	17320.	472.0	8.0	.2160	.250	.450	.300	.470	3.90	.50	.00024	4
118	122	18880.	481.0	8.0	.2138	.150	.400	.200	.450	3.90	.50	.00024	4
119	123	8320.	389.0	12.0	.1613	.150	.400	.200	.450	3.90	.50	.00024	4
113	116	19040.	702.0	5.0	.1137	.300	.500	.300	.500	3.90	.50	.00024	4
93	96	12640.	579.0	5.0	.2560	.250	.450	.300	.460	3.90	.50	.00024	4
230	95	8000.	200.0	5.0	.2312	.250	.450	.300	.450	3.90	.50	.00024	4
88	85	3840.	118.0	5.0	.2369	.250	.450	.300	.400	3.90	.50	.00024	4
89	86	11760.	331.0	5.0	.2521	.250	.450	.300	.400	3.90	.50	.00024	4
90	87	16080.	655.0	5.0	.1364	.250	.450	.300	.400	3.50	.20	.00100	4
84	81	12440.	303.0	5.0	.2148	.250	.450	.300	.400	3.50	.20	.00100	4
85	82	2220.	96.0	5.0	.1143	.250	.450	.300	.400	3.50	.20	.00100	4
86	83	4760.	197.0	5.0	.1438	.250	.450	.300	.400	3.90	.50	.00024	4
87	84	5440.	106.0	5.0	.1919	.250	.450	.300	.400	3.90	.50	.00024	4
83	80	31300.	862.0	9.0	.1050	.150	.400	.200	.400	3.50	.20	.00100	4
74	121	9400.	326.0	6.0	.1923	.150	.400	.200	.400	3.50	.20	.00024	4
70	79	16040.	633.0	7.0	.1589	.250	.450	.300	.400	3.50	.20	.00100	4
61	75	3200.	62.0	5.0	.3363	.250	.450	.300	.400	3.90	.50	.00024	4
63	76	12840.	379.0	8.0	.1972	.250	.450	.300	.400	3.50	.20	.00100	4
65	77	4040.	66.0	8.0	.2100	.250	.450	.300	.430	3.90	.50	.00024	4
66	78	7560.	256.0	5.0	.1250	.250	.450	.300	.450	3.90	.50	.00024	4
58	74	9400.	411.0	8.0	.3384	.250	.450	.300	.400	3.50	.20	.00100	4
228	89	8480.	319.0	8.0	.1659	.150	.400	.150	.450	3.50	.20	.00100	4
229	93	4880.	111.0	5.0	.2059	.250	.450	.300	.450	4.50	.60	.00010	4
91	88	16520.	352.0	6.0	.1576	.250	.450	.300	.450	3.90	.50	.00024	4
114	117	12000.	390.0	15.0	.1571	.150	.400	.150	.430	3.90	.50	.00024	4
115	118	16440.	453.0	6.0	.1736	.250	.450	.300	.460	3.90	.50	.00024	4

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 116   119    2600.   34.0   15.0  .1472   .150   .400   .150   .500   3.90   .50   .00024   4
 117   120    7960.  220.0   15.0  .1331   .150   .400   .150   .470   3.90   .50   .00024   4
 101   104    6880.  205.0   15.0  .1564   .150   .400   .150   .450   3.50   .20   .00100   4
 102   105    9120.  343.0   10.0  .1175   .150   .400   .150   .500   3.90   .50   .00024   4
 103   106   12760.  273.0    8.0  .1121   .250   .450   .300   .500   3.90   .50   .00024   4
  99   102   10440.  314.0   10.0  .1275   .150   .400   .150   .480   3.90   .50   .00024   4
 100   103    8170.  150.0    8.0  .1343   .150   .400   .150   .450   3.90   .50   .00100   4
 109   112    7280.  208.0    7.0  .4086   .250   .450   .300   .470   3.90   .50   .00024   4
 110   113   10120.  209.0    7.0  .2899   .250   .450   .300   .500   3.90   .50   .00024   4
 111   114    9000.  230.0    5.0  .2973   .300   .500   .300   .470   3.90   .50   .00024   5
 112   115    6480.  102.0    6.0  .4123   .250   .450   .300   .460   3.90   .50   .00024   4
 107   110    4140.  399.0    8.0  .3550   .250   .450   .300   .470   3.90   .50   .00024   4
 105   108   12480.  202.0    5.0  .3863   .300   .500   .300   .470   3.90   .50   .00024   4
 106   109    5520.  216.0    7.0  .1680   .250   .450   .300   .500   3.90   .50   .00024   4
 108   111   11200.  199.0    5.0  .4732   .300   .500   .300   .460   3.90   .50   .00024   4
 104   107    5440.  106.0    8.0  .2557   .250   .450   .300   .480   3.90   .50   .00024   4
  97   100   19960.  458.0    7.0  .5159   .250   .450   .300   .480   3.50   .20   .00100   4
  95    98   14000.  309.0   18.0  .1544   .250   .450   .200   .470   3.50   .20   .00100   4
  96    99    2880.   55.0   10.0  .3003   .250   .450   .300   .480   3.50   .20   .00100   1
  98   101    1380.   82.0    8.0  .1629   .250   .450   .200   .470   3.50   .20   .00100   4
  94    97   11440.  472.0    8.0  .3012   .250   .450   .300   .470   3.90   .50   .00024   1
  92    94    5120.  475.0    7.0  .1426   .250   .450   .300   .500   3.90   .50   .00024   1
  56    72    8960.  197.0    7.0  .1792   .150   .400   .150   .420   3.50   .20   .00100   1
  57    73   16000.  636.0    8.0  .1300   .150   .400   .150   .440   3.90   .50   .00024   1
  55    71    9640.  261.0    7.0  .1967   .250   .450   .300   .470   3.50   .20   .00100   1
  43    59    8040.  296.0    9.0  .1912   .150   .400   .150   .400   3.90   .50   .00024   4
  47    63    7960.  234.0    6.0  .4083   .250   .450   .300   .470   3.90   .50   .00024   1
  48    64    7480.  258.0    6.0  .3750   .250   .450   .300   .500   3.90   .50   .00024   4
  45    61   15000.  552.0    8.0  .2077   .250   .450   .200   .470   3.50   .20   .00100   4
  42    46    6440.  197.0    7.0  .3799   .250   .450   .200   .400 . 3.50   .20   .00100   4
  44    60    8160.  225.0    7.0  .2515   .250   .450   .200   .470   3.50   .20   .00100   4
  46    62    2800.   39.0    5.0  .3963   .250   .450   .300   .470   3.50   .20   .00100   4
  50    66    6120.  108.0    6.0  .4444   .250   .450   .300   .500   3.90   .50   .00024   4
  51    67   13240.  636.0    7.0  .3651   .250   .450   .300   .470   3.50   .20   .00100   4
  53    69    7480.  197.0   12.0  .2552   .150   .400   .150   .470   3.50   .20   .00100   4
  54    70   13920.  246.0   12.0  .2827   .150   .400   .150   .420   3.50   .20   .00100   4
  49    65    7920.  212.0    5.0  .3375   .250   .450   .300   .480   3.90   .50   .00024   4
  52    68    4240.   80.0    7.0  .3917   .250   .450   .300   .500   3.50   .20   .00100   4
  41    42   15160.  593.0    8.0  .4922   .250   .450   .200   .450   3.90   .50   .00024   4
  39    40   13160.  356.0   20.0  .4570   .250   .450   .100   .450   3.90   .50   .00024   3
  40    41    6200.  205.0    9.0  .5172   .250   .450   .200   .500   3.50   .20   .00100   4
  18    18   15200.  565.0    7.0  .3792   .250   .450   .200   .420   3.50   .20   .00100   3
  19    20   10680.  606.0    9.0  .1670   .150   .400   .150   .470   3.90   .50   .00024   4
  20    21   13920.  379.0    6.0  .3275   .250   .450   .300   .400   3.90   .50   .00024   3
  14    14    6160.  132.0   25.0  .4006   .250   .450   .100   .500   3.50   .20   .00100   5
  15    15    3000.   36.0   25.0  .3169   .250   .450   .100   .450   3.50   .20   .00100   5
  16    16    3840.  117.0   25.0  .2094   .250   .450   .100   .400   3.50   .20   .00100   5
  17    17    5640.  156.0   20.0  .3423   .250   .450   .100   .400   3.50   .20   .00100   5
   8     8   14200. 1227.0   67.0  .2919   .250   .450   .050   .450   3.50   .20   .00100   5
  37    38    5060.  368.0    7.0  .2400   .250   .450   .200   .420   3.90   .50   .00024   4
  38    39   10280.  290.0    7.0  .3153   .250   .450   .300   .420   3.50   .20   .00100   4
  36    37   16320.  466.0    5.0  .1439   .250   .450 - .300   .480   3.90   .50   .00024   4
  33    34   13680.  445.0    8.0  .1186   .150   .400   .200   .410   3.90   .50   .00024   4
  34    35    6280.  148.0    7.0  .2940   .250   .450   .300   .420   3.50   .20   .00100   4
  35    36   10680.  251.0    6.0  .1368   .250   .450   .300   .400   3.50   .20   .00100   4
  31    32    6520.  144.0    6.0  .2938   .250   .450   .300   .420   3.90   .50   .00024   4
  32    33   10360.  257.0   12.0  .1275   .150   .400   .150   .420   3.50   .20   .00100   4
  30    31    5440.  107.0    7.0  .2363   .150   .400   .150   .450   4.50   .60   .00010   3
  22    23    9840.  195.0    8.0  .1920   .250   .450   .200   .460   3.50   .20   .00100   3
  29    30   11560.  546.0   12.0  .0980   .150   .400   .150   .450   3.50   .20   .00100   4
  26    27    5080.  107.0    5.0  .2510   .250   .450   .300   .450   3.90   .50   .00024   3
  27    28    5040.  300.0    9.0  .1461   .150   .400   .150   .430   3.90   .50   .00024   3
  28    29    6120.  152.0    7.0  .2020   .150   .400   .150   .450   3.50   .20   .00100   4
  24    25    5920.  363.0    9.0  .3292   .250   .450   .300   .450   3.50   .20   .00100   3
  25    26    3720.   94.0    8.0  .1772   .150   .400   .150   .450   3.50   .20   .00100   3
  23    24    1740.  104.0    7.0  .1530   .250   .450   .300   .450   3.50   .20   .00100   3
  21    22   12000.  447.0   20.0  .2822   .150   .400   .200   .400   3.50   .20   .00100   3
   9     9   20640.  411.0    8.0  .2894   .250   .450   .300   .470   3.90   .50   .00024   2
  10    10    7520.  202.0    6.0  .3773   .250   .450   .300   .480   3.90   .50   .00024   2
   7     7    9880.  373.0    7.0  .2911   .300   .500   .300   .500   3.90   .50   .00024   2
   3     3   22000.  929.0    8.0  .3243   .250   .450   .200   .450   3.50   .20   .00100   2
   4     4   25560.  960.0    8.0  .2675   .250   .450   .200   .500   3.50   .20   .00100   2
   2     2   14480.  519.0    7.0  .4504   .300   .500   .300   .420   3.50   .20   .00100   2
   6     6   16100.  296.0   10.0  .4790   .300   .500   .300   .450   3.50   .20   .00100   2
   5     5   18300.  336.0    6.0  .2506   .300   .500   .300   .420   5.00   .60   .00006   2
   1     1   30900.  567.0    7.0  .5000   .300   .500   .300   .420   3.50   .20   .00100   2
  11    11    6000.  113.0   25.0  .3243   .250   .450   .200   .500   3.90   .50   .00024   2
  12    12    8360.  159.0    6.0  .3715   .300   .500   .300   .500   3.90   .50   .00024   2
  13    13   10480.  229.0    7.0  .3542   .300   .500   .300   .500   3.90   .50   .00024   2
 256   247   39100.  808.0    7.0  .1652   .250   .450   .200   .450   3.50   .20   .00100   2
 257   248   31200.  645.0    8.0  .2217   .250   .450   .200   .450   3.50   .20   .00100   2
 258   249   18300.  377.0    7.0  .1984   .250   .450   .300   .420   3.50   .20   .00100   2
 259   250    5300.  109.0    5.0  .1627   .250   .450   .300   .450   4.80   .50   .00010   2
 253   244   36900.  848.0   50.0  .2354   .300   .500   .300   .350   3.90   .50   .00024   2
 254   245    7300.  100.0    7.0  .2934   .250   .450   .200   .450   3.50   .20   .00100   2
 255   246   21800.  450.0    8.0  .2396   .250   .450   .300   .450   3.50   .20   .00100   2
  76    54   10300.  213.0    8.0  .3735   .300   .500   .300   .500   5.00   .60   .00006   2
  77    55   25900.  297.0    7.0  .4316   .300   .500   .300   .500   5.00   .60   .00006   2
  75    53    2400.   26.0    6.0  .4875   .300   .500   .300   .460   3.50   .20   .00024   2
  73    52   38400.  441.0   18.0  .3662   .300   .500   .300   .400   3.50   .20   .00100   2
  82    51   19700.  362.0   25.0  .3938   .250   .450   .300   .400   3.50   .20   .00100   2
  71    50   11300.  207.0   25.0  .4627   .300   .500   .400   .450   3.50   .20   .00100   2
  80    58   12000.  220.0    6.0  .3854   .300   .500   .300   .480   5.00   .60   .00006   2
  81    57   42200.  776.0    8.0  .5226   .250   .450   .200   .470   4.50   .60   .00010   2
  78    56   22000.  404.0   18.0  .4013   .250   .450   .300   .500   4.80   .50   .00010   2
  79    56   21400.  442.0   15.0  .3303   .300   .500   .300   .450   4.50   .60   .00010   2
  72    49   16000.  220.0   35.0  .5698   .300   .500   .300   .500   4.50   .50   .00010   2
  69    48    9400.  391.0   35.0  .2301   .250   .450   .300   .400   3.90   .50   .00024   2
1635  1635   12865.  317.0   12.0  .3700   .300   .500   .300   .450   3.50   .20   .00100   2
1645  1645    5640.  126.0    5.0  .2900   .250   .450   .150   .450   3.50   .20   .00100   2
1640  1640    8667.  200.0   10.0  .2900   .300   .300   .320   .450   3.50   .20   .00100   2
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 1630     1630      8660.   159.0      6.0     .1300      .400      .450      .150      .450     3.50     .20      .00100     2
 1625     1625     10700.   197.0      9.0     .2100      .200      .400      .150      .450     3.50     .20      .00100     1
 1610     1610      6780.   109.0      9.0     .0200      .200      .400      .150      .450     4.80     .50      .00010     1
 1665     1665     14692.   390.0     35.0     .2870      .200      .400      .150      .450     3.50     .20      .00100     2
 1605     1605      7689.    81.0      6.0     .1100      .200      .400      .150      .450     4.80     .50      .00010     1
 1660     1660     23764.   552.0      7.0     .2000      .200      .450      .150      .460     3.90     .50      .00024     2
 1650     1650     13676.   382.0      7.0     .2300      .200      .200      .150      .450     3.50     .20      .00100     2
 1655     1655     22832.   558.0      6.0     .1600      .200      .450      .150      .460     3.50     .20      .00100     2
 1620     1620     17977.   324.0      7.0     .0500      .200      .400      .150      .470     4.80     .50      .00010     2
 1615     1615     11967.   228.0      7.0     .1200      .200      .400      .150      .470     4.50     .60      .00010     2
 1710     1710      9974.   245.0      5.0     .0100      .200      .400      .150      .350     3.90     .50      .00024     1
 1600     1600      3273.    25.0      7.0     .0500      .200      .450      .150      .600     5.00     .70      .00002     1
 1705     1705      2245.    67.0      5.0     .0100      .200      .400      .150      .350     3.90     .50      .00024     2
 1450     1450      4800.   198.0      5.0     .0200      .150      .450      .150      .600     3.90     .50      .00024     1
 1445     1445      6714.   164.0      5.0     .0800      .200      .400      .150      .350     5.00     .60      .00006     1
 1440     1440     12663.    66.0      7.0     .0100      .150      .450      .150      .600     3.90     .50      .00024     1
 1480     1938     34034.   732.0     35.0     .0200      .200      .400      .150      .300     3.90     .50      .00024     1
 1435     1435      6984.   232.0      5.0     .0800      .200      .400      .150      .460     5.00     .60      .00006     1
 1430     1430      6338.    82.0      5.0     .0700      .200      .400      .150      .460     5.00     .60      .00006     1
 1425     1425      4940.    68.0      6.0     .0400      .200      .400      .150      .600     5.00     .70      .00002     1
 1420     1420     26178.    59.0      9.0     .0220      .200      .450      .150      .600     3.90     .50      .00024     1
 1570     1570      3089.   171.0      6.0     .3540      .200      .450      .150      .450     3.50     .20      .00100     2
 1555     1556      7055.    83.0      7.0     .1300      .200      .450      .150      .450     4.80     .50      .00010     1
 1565     1565      4112.    95.0      9.0     .3200      .200      .450      .150      .470     3.50     .20      .00100     2
 1560     1560      5353.   123.0      8.0     .4400      .200      .450      .150      .450     3.50     .20      .00100     2
 1550     1550     20321.   424.0      7.0     .0700      .200      .400      .150      .450     3.50     .20      .00100     1
 1415     1415      5148.   307.0      5.0     .0260      .200      .400      .150      .500     3.90     .50      .00024     1
 1410     1410      5300.   195.0      5.0     .0100      .150      .450      .150      .500     3.90     .50      .00024     1
 1455     1455     19899.   542.0     11.0     .0037      .200      .400      .150      .350     4.80     .50      .00010     1
 1490     1490      8100.   698.0     10.0     .0620      .200      .400      .150      .350     4.50     .50      .00010     1
 1465     1465     19569.    93.0     10.0     .0348      .150      .500      .150      .350     4.50     .60      .00010     1
 1460     1460     12745.   286.0      9.0     .0603      .200      .400      .150      .350     5.00     .60      .00006     1
 1575     1575     10554.   222.0     10.0     .4060      .200      .450      .150      .450     3.50     .20      .00100     2
 1545     1545     15603.   253.0      7.0     .0890      .200      .400      .150      .450     4.80     .50      .00010     1
 1530     1530      8269.   345.0      6.0     .1080      .200      .400      .150      .350     4.80     .50      .00010     1
 1525     1525     14343.    53.0     10.0     .0200      .150      .400      .150      .350     3.90     .50      .00024     1
 1505     1505     49306.   262.0     10.0     .0100      .150      .450      .150      .350     3.50     .20      .00100     1
 1520     1520     21460.    99.0     10.0     .0100      .200      .450      .150      .350     3.50     .20      .00100     1
 1715     1715      3131.   115.0      7.0     .1200      .150      .400      .150      .350     3.90     .50      .00024     1
 1515     1515      3666.     8.0     60.0     .0200      .150      .400      .150      .350     3.50     .20      .00100     1
 1540     1541     19881.   345.0     15.0     .0300      .200      .400      .150      .350     4.50     .60      .00010     1
 1510     1510     16588.    76.0      3.0     .0100      .150      .400      .150      .350     3.90     .50      .00024     1
 1500     1500     21483.   465.0     10.0     .0400      .200      .400      .150      .250     3.90     .50      .00024     1
  299      299     20092.    72.0     40.0     .1300      .150      .500      .150      .350     4.80     .50      .00010     1
  301      301     38137.   177.0     31.0     .1600      .150      .500      .150      .350     4.80     .50      .00010     1
  297      297     84806.   338.0     40.0     .1200      .150      .500      .150      .350     4.80     .50      .00010     1
  305     1917      1795.   103.0     10.0     .0240      .150      .350      .150      .250     3.90     .50      .00024     1
  304      304      2970.   150.0     10.0     .0240      .150      .350      .150      .250     3.90     .50      .00024     1
  262      262      3964.    39.0      5.0     .0200      .200      .400      .150      .250     3.90     .50      .00024     1
  264      264      1734.    26.0      5.0     .0200      .200      .400      .150      .250     3.90     .50      .00024     1
  243      243     46293.    82.0      7.0     .0200      .200      .350      .150      .350     3.90     .50      .00024     1
  384      384     27915.    77.0     45.0     .0900      .150      .500      .150      .350     4.80     .50      .00010     1
  290      290      4748.    29.0      5.0     .0250      .300      .400      .150      .400     3.90     .50      .00024     1
  353      353     12867.    41.0     50.0     .0700      .150      .500      .150      .350     5.00     .60      .00006     1
  350      350     13939.    51.0     70.0     .0550      .150      .400      .150      .350     4.80     .50      .00010     1
  351      351     17043.    59.0     70.0     .0600      .150      .450      .150      .350     5.00     .60      .00006     1
  376      376      1390.     3.0     10.0     .0100      .150      .450      .150      .350     4.80     .50      .00010     1
  368      368      7225.    99.0     50.0     .0070      .150      .450      .150      .350     3.90     .50      .00024     1
  361      361      6400.    30.0     60.0     .0060      .150      .450      .150      .350     3.90     .50      .00024     1
  369      369      7449.    17.0     60.0     .0400      .150      .450      .150      .350     4.80     .50      .00010     1
  354     1818      6316.     6.0     95.0     .0400      .150      .350      .150      .250     4.80     .50      .00010     1
  355      355      9583.     7.0     65.0     .0400      .150      .350      .150      .250     4.80     .50      .00010     1
  363      363      9583.     7.0     33.0     .0550      .150      .350      .150      .250     4.80     .50      .00010     1
  366      366     26706.    81.0     45.0     .0550      .150      .500      .150      .350     4.80     .50      .00010     1
  367      367      9047.    23.0     65.0     .0450      .150      .500      .150      .350     4.80     .50      .00010     1
  373      373      4140.    38.0      6.0     .0200      .150      .400      .150      .350     4.80     .50      .00010     1
  241      241     45665.   343.0     45.0     .0200      .150      .400      .150      .450     3.90     .50      .00024     1
  346      346     21083.    71.0     40.0     .0600      .150      .450      .150      .350     3.90     .50      .00024     1
  345      345     20528.    78.0     50.0     .0600      .150      .450      .150      .350     4.80     .50      .00010     1
  349      349      1951.    13.0     15.0     .0200      .150      .450      .150      .350     4.80     .50      .00010     1
  347      347     11476.    55.0     65.0     .0500      .150      .400      .150      .350     4.80     .50      .00010     1
  371      371     12050.    83.0     50.0     .0500      .150      .450      .150      .250     4.80     .50      .00010     1
  338      338     14259.    73.0      8.0     .0250      .150      .350      .150      .250     3.90     .50      .00024     1
  333      333      6300.     5.0     60.0     .0400      .200      .450      .150      .550     3.50     .20      .00100     1
  334      334      6300.     5.0     60.0     .0400      .150      .350      .150      .250     3.50     .20      .00100     1
  240      240      2500.    46.0     25.0     .1100      .150      .450      .150      .600     3.90     .50      .00024     1
  318      318     20255.   157.0     20.0     .0300      .150      .550      .150      .500     3.90     .50      .00024     1
  335      335      8868.    36.0     45.0     .0500      .150      .450      .150      .450     3.90     .50      .00024     1
  336     1329     10002.    31.0     45.0     .0300      .150      .450      .150      .450     3.90     .50      .00024     1
  337      337     14520.    50.0     50.0     .0350      .150      .450      .150      .450     3.90     .50      .00024     1
  312      312      7094.    12.0     70.0     .0400      .150      .450      .150      .250     3.90     .50      .00024     1
  315      315      8712.    28.0     45.0     .0400      .150      .450      .150      .450     3.90     .50      .00024     1
  316      316     12777.    43.0     45.0     .0300      .150      .450      .150      .450     3.90     .50      .00024     1
  358      358      4084.    12.0     45.0     .0300      .150      .450      .150      .450     3.90     .50      .00024     1
  320      320     22099.   161.0     50.0     .0250      .250      .450      .250      .600     3.90     .50      .00024     1
 1323     1323      2406.     9.0     50.0     .0080      .150      .450      .150      .450     3.90     .50      .00024     1
  321      321     47509.    25.0     60.0     .0450      .150      .450      .150      .350     3.90     .50      .00024     1
  319      319     43000.   164.0     70.0     .0250      .150      .400      .150      .250     3.90     .50      .00024     1
  370      370     14400.    41.0     70.0     .0250      .150      .400      .150      .250     3.90     .50      .00024     1
  233      233     42776.   281.0     25.0     .0500      .150      .500      .150      .500     3.90     .50      .00024     1
  235      235     20400.   187.0     20.0     .1100      .150      .500      .150      .500     3.90     .50      .00024     1
  231      231     58487.   390.0     55.0     .0200      .150      .400      .150      .250     3.90     .50      .00024     1
0TOTAL NUMBER OF SUBCATCHMENTS, 314
0TOTAL TRIBUTARY AREA (ACRES),  86852.00
1


 model sbc_1td
 50-year model
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*** CONTINUITY CHECK FOR SUBCATCHMEMT ROUTING IN UDSWM386 MODEL ***

WATERSHED AREA (ACRES)                              86852.000

TOTAL RAINFALL (INCHES)                                 3.645

TOTAL INFILTRATION (INCHES)                             2.709

TOTAL WATERSHED OUTFLOW (INCHES)                         .908

TOTAL SURFACE STORAGE AT END OF STORM (INCHES)           .028

ERROR IN CONTINUITY, PERCENTAGE OF RAINFALL             -.023
1


model sbc_1td
50-year model



                                                             WIDTH             INVERT     SIDE SLOPES          OVERBANK/SURCHARGE
GUTTER      GUTTER        NDP         NP                    OR DIAM   LENGTH    SLOPE    HORIZ TO VERT   MANNING       DEPTH        JK
NUMBER    CONNECTION                                         (FT)      (FT)    (FT/FT)     L       R         N          (FT)

 226         224           0           1     CHANNEL         20.0     3740.     .1337     4.0    4.0       .040        15.00         0
 225         224           0           1     CHANNEL          5.0     1862.     .0600    10.0   10.0       .045        15.00         0
 224         222           0           1     CHANNEL          4.0     4220.     .1300     3.0    3.0       .055        15.00         0
 223         222           0           1     CHANNEL         10.0     5960.     .1406    10.0   10.0       .040        15.00         0
 222         218           0           1     CHANNEL          5.0     2280.     .1000     4.0    4.0       .055        15.00         0
 221         218           0           1     CHANNEL          5.0     6520.     .1992     5.0    5.0       .055        15.00         0
 220         219           0           1     CHANNEL          8.0     7580.     .2107     7.0    7.0       .050        15.00         0
 218         219           0           1     CHANNEL          5.0     1660.     .0900     4.0    4.0       .055        15.00         0
 219         215           0           1     CHANNEL         10.0     2531.     .1000     7.0    7.0       .055        15.00         0
 216         215           0           1     CHANNEL         20.0     8160.     .1875    10.0   10.0       .055        15.00         0
 214         212           0           1     CHANNEL         10.0     6880.     .1727    10.0   10.0       .055        15.00         0
 213         212           0           1     CHANNEL         10.0     5900.     .1268    10.0   10.0       .055        15.00         0
 212         211           0           1     CHANNEL         15.0     6100.     .1511     7.0    7.0       .060        15.00         0
 215         211           0           4     CHANNEL         10.0     5210.     .0600     4.0    4.0       .050         2.00         0
                                               OVERFLOW      50.0     5210.     .0600     6.0    6.0       .055        25.00
 217         215           0           1     CHANNEL         20.0     4860.     .3560     5.0    5.0       .040        15.00         0
 211         207           0           4     CHANNEL          8.0     2390.     .0500     3.0    3.0       .050         2.00         0
                                               OVERFLOW      25.0     2390.     .0500     5.0    5.0       .055        25.00
 186         184           0           1     CHANNEL         10.0     4260.     .1002     9.0    9.0       .060        15.00         0
 185         184           0           1     CHANNEL          5.0     3720.     .0594     6.0    6.0       .060        15.00         0
 183         182           0           1     CHANNEL         10.0     8000.     .1050     6.0    6.0       .060        15.00         0
 181         180           0           1     CHANNEL          5.0     6640.     .1583     7.0    7.0       .060        15.00         0
 184         182           0           1     CHANNEL         15.0     3540.     .1158     8.0    8.0       .055        15.00         0
 182         180           0           4     CHANNEL         15.0     4600.     .0720     4.0    4.0       .050         2.50         0
                                               OVERFLOW     100.0     4370.     .0758    15.0   15.0       .055        20.00
 180         176           0           4     CHANNEL         10.0     4520.     .0507     4.0    4.0       .045         3.00         0
                                               OVERFLOW      35.0     4294.     .0534     3.0    3.0       .060        20.00
 204         201           0           1     CHANNEL         15.0     6720.     .0911     6.0    6.0       .050        15.00         0
 203         201           0           1     CHANNEL          5.0     3500.     .2286     5.0    5.0       .055        15.00         0
 201         198           0           4     CHANNEL         15.0     7700.     .0835     4.0    4.0       .050         3.00         0
                                               OVERFLOW      50.0     7315.     .0879     7.0    7.0       .060        20.00
 200         198           0           1     CHANNEL          5.0     7220.     .1722     7.0    7.0       .055        15.00         0
 202         198           0           1     CHANNEL          5.0     3820.     .1971     5.0    5.0       .060        15.00         0
 198         194           0           4     CHANNEL         25.0     7220.     .0370     4.0    4.0       .050         3.00         0
                                               OVERFLOW     200.0     6860.     .0389     7.0    7.0       .060        20.00
 199         194           0           1     CHANNEL          5.0     9020.     .1233     6.0    6.0       .060        15.00         0
 196         194           0           1     CHANNEL          5.0     7320.     .1243     5.0    5.0       .060        15.00         0
 195         194           0           1     CHANNEL         10.0     4760.     .1513     5.0    5.0       .060        15.00         0
 194         192           0           4     CHANNEL         20.0     7560.     .0921     4.0    4.0       .055         3.00         0
                                               OVERFLOW      80.0     7182.     .0969    10.0   10.0       .060        20.00
 208         207           0           1     CHANNEL         10.0     4260.     .2230     8.0    8.0       .060        15.00         0
 207         205           0           4     CHANNEL         25.0     5000.     .0150     4.0    4.0       .040         2.00         0
                                               OVERFLOW     200.0     5000.     .0150    10.0   10.0       .050        25.00
 206         205           0           1     CHANNEL         25.0     3860.     .2591     5.0    5.0       .040        15.00         0
 205         192           0           4     CHANNEL         20.0     4900.     .0349     4.0    4.0       .045         3.00         0
                                               OVERFLOW     100.0     4900.     .0349     8.0    8.0       .055        25.00
 192         187           0           4     CHANNEL         32.0     1540.     .0120     4.0    4.0       .040         3.00         0
                                               OVERFLOW     250.0     1540.     .0120    20.0   20.0       .050        25.00
 193         187           0           1     CHANNEL         25.0     4480.     .1897     4.0    4.0       .040        15.00         0
 187         172           0           4     CHANNEL         32.0     7388.     .0100     4.0    4.0       .040         3.00         0
                                               OVERFLOW     250.0     7388.     .0100    20.0   20.0       .050        25.00
 178         177           0           1     CHANNEL          5.0     6500.     .1186     8.0    8.0       .060        15.00         0
 177         175           0           1     CHANNEL          8.0     6020.     .0862     7.0    7.0       .055        15.00         0
 179         176           0           1     CHANNEL         20.0     3860.     .2383     5.0    5.0       .045        15.00         0
 176         175           0           4     CHANNEL         20.0     7520.     .0386     4.0    4.0       .045         3.00         0
                                               OVERFLOW     100.0     7144.     .0406     5.0    5.0       .060        20.00
 174         173           0           1     CHANNEL          5.0     4060.     .1421     6.0    6.0       .055        15.00         0
 175         173           0           4     CHANNEL         30.0     1900.     .0353     4.0    4.0       .035         3.00         0
                                               OVERFLOW     150.0     1805.     .0372    15.0   15.0       .045        20.00
 173         172           0           4     CHANNEL         25.0     5760.     .0587     4.0    4.0       .035         3.00         0
                                               OVERFLOW     200.0     5472.     .0618    15.0   15.0       .045        20.00
 172         157           0           4     CHANNEL         25.0     1860.     .0100     3.0    3.0       .045         3.00         0
                                               OVERFLOW      75.0     1860.     .0100     5.0    5.0       .050        25.00
 168         165           0           1     CHANNEL          5.0     3620.     .1740     7.0    7.0       .060        15.00         0
 169         165           0           1     CHANNEL          5.0     3140.     .1720     7.0    7.0       .060        15.00         0
 165         166           0           1     CHANNEL         10.0     6920.     .1026     5.0    5.0       .060        15.00         0
 167         166           0           1     CHANNEL          5.0     5360.     .1940     6.0    6.0       .060        15.00         0
 166         163           0           1     CHANNEL         15.0     1040.     .0673    10.0   10.0       .055        15.00         0
 164         163           0           1     CHANNEL         10.0     4000.     .1263     8.0    8.0       .050        15.00         0
 163         157           0           1     CHANNEL         25.0     2640.     .0568     5.0    5.0       .050        15.00         0
 170         157           0           1     CHANNEL          5.0     4840.     .1543     5.0    5.0       .055        15.00         0
 171         157           0           1     CHANNEL          5.0     4420.     .1837     7.0    7.0       .055        15.00         0
 157         156           0           4     CHANNEL         25.0     1660.     .0220     3.0    3.0       .045         3.00         0
                                               OVERFLOW      75.0     1660.     .0220     4.0    4.0       .050        25.00
 161         160           0           1     CHANNEL          5.0     4380.     .1667     5.0    5.0       .060        15.00         0
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 162     160     0     1    CHANNEL       5.0    5800.   .2121    5.0   5.0    .060    15.00    0
 160     158     0     1    CHANNEL      10.0    3360.   .0908   10.0  10.0    .055    15.00    0
 159     158     0     1    CHANNEL      10.0    6380.   .1293    6.0   6.0    .060    15.00    0
 158     156     0     1    CHANNEL      20.0    5700.   .0619    5.0   5.0    .050    15.00    0
 156     154     0     4    CHANNEL      35.0    4980.   .0190    3.0   3.0    .050     3.00    0
                              OVERFLOW  100.0    4980.   .0190    3.0   3.0    .055    25.00
 155     154     0     1    CHANNEL      12.0    2180.   .2683    4.0   4.0    .050    15.00    0
 153     152     0     1    CHANNEL      12.0    4380.   .1530    4.0   4.0    .060    15.00    0
 154     152     0     4    CHANNEL      35.0    2880.   .0200    3.0   3.0    .050     3.00    0
                              OVERFLOW  100.0    2880.   .0200    3.0   3.0    .055    25.00
 152     149     0     4    CHANNEL      30.0    6980.   .0150    4.0   4.0    .045     3.00    0
                              OVERFLOW  200.0    6980.   .0150    5.0   5.0    .050    25.00
 150     149     0     1    CHANNEL       5.0    2780.   .1691    4.0   4.0    .055    15.00    0
 151     149     0     1    CHANNEL       6.0    4120.   .1286    4.0   4.0    .055    15.00    0
 149     139     0     4    CHANNEL      35.0    3220.   .0140    4.0   4.0    .045     3.00    0
                              OVERFLOW  300.0    3220.   .0140    5.0   5.0    .050    25.00
 147     146     0     1    CHANNEL       8.0    5600.   .1625    6.0   6.0    .060    15.00    0
 148     146     0     1    CHANNEL       8.0    2720.   .1048    8.0   8.0    .060    15.00    0
 146     142     0     1    CHANNEL      10.0    5540.   .0727    8.0   8.0    .055    15.00    0
 144     143     0     1    CHANNEL       5.0    2200.   .1568    8.0   8.0    .060    15.00    0
 145     143     0     1    CHANNEL       3.0    2160.   .1574    5.0   5.0    .060    15.00    0
 143     142     0     1    CHANNEL       8.0    4840.   .1184    5.0   5.0    .060    15.00    0
 142     140     0     1    CHANNEL      10.0    2080.   .0514    8.0   5.0    .055    15.00    0
 141     140     0     1    CHANNEL       5.0    3800.   .1237    5.0   5.0    .060    15.00    0
 140     139     0     1    CHANNEL      15.0    4320.   .0505    8.0   7.0    .055    15.00    0
 138     137     0     1    CHANNEL      10.0    5440.   .0432   10.0  10.0    .055    15.00    0
 139     137     0     4    CHANNEL      30.0    1880.   .0160    4.0   4.0    .045     3.00    0
                              OVERFLOW  200.0    1880.   .0160    5.0   5.0    .050    25.00
 137     129     0     4    CHANNEL      30.0    2009.   .0130    4.0   4.0    .040     3.00    0
                              OVERFLOW  200.0    2009.   .0130    5.0   5.0    .050    25.00
 135     134     0     1    CHANNEL       5.0    4080.   .1716    5.0   5.0    .060    15.00    0
 136     134     0     1    CHANNEL       5.0    3000.   .1433    6.0   6.0    .060    15.00    0
 134     133     0     1    CHANNEL      10.0   10020.   .0868    5.0   5.0    .055    15.00    0
 133     130     0     1    CHANNEL      15.0    7720.   .0505    5.0   5.0    .055    15.00    0
 131     130     0     4    CHANNEL      15.0    4860.   .1008    3.0   3.0    .055     3.00    0
                              OVERFLOW  100.0    4617.   .1061   10.0  10.0    .060    20.00
 132     130     0     1    CHANNEL       8.0    4560.   .0789    6.0   6.0    .060    15.00    0
 130     129     0     1    CHANNEL      25.0    3360.   .0363    7.0   7.0    .055    15.00    0
 129      96     0     4    CHANNEL      30.0    3520.   .0160    3.5   3.5    .055     4.00    0
                              OVERFLOW  100.0    3520.   .0160    4.0   4.0    .060    25.00
 125     124     0     1    CHANNEL       5.0    3800.   .1842    8.0   8.0    .055    15.00    0
 126     124     0     1    CHANNEL       5.0    3420.   .1871    6.0   6.0    .060    15.00    0
 124     122     0     1    CHANNEL      10.0    7520.   .0535    8.0   8.0    .055    15.00    0
 127     123     0     1    CHANNEL      10.0    8000.   .1056   10.0  10.0    .055    15.00    0
 128     123     0     1    CHANNEL      10.0    8660.   .1236   15.0  15.0    .055    15.00    0
 123     122     0     1    CHANNEL      15.0    4160.   .0317   15.0  15.0    .055    15.00    0
 122      96     0     1    CHANNEL      20.0    9440.   .0607    5.0   5.0    .060    15.00    0
  96      95     0     4    CHANNEL      25.0    6320.   .0170    2.0   2.0    .055     4.00    0
                              OVERFLOW   50.0    6320.   .0170    2.0   2.0    .060    25.00
 116      95     0     4    CHANNEL       5.0    9520.   .0772    3.0   3.0    .050     2.50    0
                              OVERFLOW   70.0    9044.   .0813    8.0   8.0    .055    20.00
  95      94     0     4    CHANNEL      30.0    4000.   .0120    3.0   3.0    .040     3.00    0
                              OVERFLOW  150.0    4000.   .0120    5.0   5.0    .050    25.00
  85      84     0     1    CHANNEL       5.0    2220.   .0396    4.0   4.0    .060    15.00    0
  86      84     0     1    CHANNEL       8.0    5880.   .1259    4.0   4.0    .060    15.00    0
  84      82     0     1    CHANNEL      10.0    2720.   .0890   10.0  10.0    .060    15.00    0
  83      82     0     1    CHANNEL      10.0    2380.   .0450   12.0  12.0    .060    15.00    0
  82      80     0     1    CHANNEL      20.0    2220.   .0396   12.0  12.0    .060    15.00    0
  87      81     0     1    CHANNEL      10.0    8040.   .0796    5.0   5.0    .065    15.00    0
  81      80     0     1    CHANNEL      15.0    6220.   .0691    7.0   7.0    .065    15.00    0
  80      79     0     1    CHANNEL      20.0    6380.   .1993   10.0  10.0    .065    15.00    0
 121      79     0     4    CHANNEL       8.0    4700.   .0660    4.0   4.0    .055     2.50    0
                              OVERFLOW   60.0    4465.   .0695   12.0  12.0    .057    20.00
  79      75     0     1    CHANNEL      25.0    8020.   .0212   10.0  10.0    .060    15.00    0
  78      75     0     1    CHANNEL       8.0    3780.   .0688   20.0  20.0    .060    15.00    0
  75      77     0     1    CHANNEL      25.0    1600.   .0188    3.0   5.0    .060    15.00    0
  77      74     0     1    CHANNEL      40.0    2020.   .0198    3.0   3.0    .060    15.00    0
  76      74     0     4    CHANNEL      10.0    6420.   .0779    4.0   4.0    .050     2.00    0
                              OVERFLOW   60.0    6420.   .0779    8.0   8.0    .055    20.00
  74      59     0     4    CHANNEL      30.0    4700.   .0130    4.0   4.0    .050     4.00    0
                              OVERFLOW   75.0    4700.   .0130    4.0   3.0    .055    25.00
  89      88     0     1    CHANNEL       8.0    4240.   .0217   10.0  10.0    .055    15.00    0
  93      88     0     1    CHANNEL       5.0    2440.   .0984   10.0  10.0    .055    15.00    0
  88      77     0     4    CHANNEL      11.0    7200.   .1380   10.0  10.0    .060     3.00    0
                              OVERFLOW  100.0    7200.   .1380   50.0  50.0    .045    20.00
 120     119     0     4    CHANNEL       5.0    3980.   .0879    3.0   3.0    .050     3.00    0
                              OVERFLOW  200.0    3781.   .0925   10.0  10.0    .055    20.00
 118     119     0     4    CHANNEL       5.0    8220.   .1095    3.0   3.0    .050     3.00    0
                              OVERFLOW  150.0    7809.   .1153   10.0  10.0    .055    20.00
 119     104     0     4    CHANNEL       5.0    1300.   .0400    3.0   3.0    .050     3.00    0
                              OVERFLOW  150.0    1235.   .0421   10.0  10.0    .055    20.00
 117     104     0     4    CHANNEL       5.0    6000.   .0587    3.0   3.0    .050     3.00    0
                              OVERFLOW  100.0    5700.   .0618   10.0  10.0    .055    20.00
 104     103     0     4    CHANNEL      10.0    3440.   .0343    3.0   3.0    .045     3.00    0
                              OVERFLOW  150.0    3268.   .0361   10.0  10.0    .050    20.00
 105     103     0     4    CHANNEL       5.0    4560.   .0811    3.0   3.0    .045     3.00    0
                              OVERFLOW  100.0    4332.   .0854   10.0  10.0    .050    20.00
 106     102     0     4    CHANNEL       5.0    6380.   .0690    3.0   3.0    .045     3.00    0
                              OVERFLOW   70.0    6061.   .0726   10.0  10.0    .050    20.00
 103     102     0     4    CHANNEL       8.0    1380.   .0362    4.0  40.0    .050     3.00    0
                              OVERFLOW   68.0    1311.   .0381   25.0  25.0    .055    20.00
 102     101     0     4    CHANNEL      11.0    5220.   .0383    8.0   8.0    .055     3.00    0
                              OVERFLOW  100.0    4959.   .0403    5.0   5.0    .060    20.00
 114     112     0     1    CHANNEL       5.0    4500.   .1467    5.0   5.0    .060     8.00    0
 115     112     0     1    CHANNEL       5.0    3240.   .1759    5.0   5.0    .060     8.00    0
 112     110     0     4    CHANNEL       5.0    3640.   .1745    3.0   3.0    .055     2.50    0
                              OVERFLOW   40.0    3458.   .1837   10.0   8.0    .060    20.00
 113     110     0     4    CHANNEL       5.0    5060.   .1690    3.0   3.0    .055     3.00    0
                              OVERFLOW   40.0    4807.   .1779   10.0  10.0    .060    20.00
 110     109     0     4    CHANNEL      11.0    4140.   .0531    4.0   4.0    .055     3.00    0
                              OVERFLOW   60.0    3933.   .0559   50.0  50.0    .060    20.00
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  111       109         0         4   CHANNEL       5.0     5600.     .2348     3.0   3.0      .050      2.00        0
                                        OVERFLOW   20.0     5320.     .2472     6.0   6.0      .055     20.00
  108       107         0         4   CHANNEL       5.0     6240.     .1875     3.0   3.0      .050      2.00        0
                                        OVERFLOW   20.0     5928.     .1974     6.0   6.0      .055     20.00
  109       107         0         4   CHANNEL      11.0     2760.     .0525     4.0   4.0      .050      3.00        0
                                        OVERFLOW   60.0     2622.     .0553     6.0   6.0      .055     20.00
  107       101         0         4   CHANNEL      11.0     2720.     .0368     4.0   4.0      .050      3.00        0
                                        OVERFLOW   45.0     2584.     .0387     6.0   6.0      .055     20.00
  101        99         0         4   CHANNEL      11.0     1380.     .0268     4.0   4.0      .050      3.00        0
                                        OVERFLOW   50.0     1311.     .0282     5.0   5.0      .055     20.00
  100        99         0         4   CHANNEL       5.0     9980.     .1735     3.0   3.0      .050      2.00        0
                                        OVERFLOW   25.0     9481.     .1826     5.0   5.0      .055     20.00
   99        97         0         4   CHANNEL      11.0     1440.     .0299     4.0   4.0      .050      3.00        0
                                        OVERFLOW   50.0     1368.     .0315     5.0   5.0      .055     20.00
   98        97         0         4   CHANNEL       8.0     7000.     .1179     3.0   3.0      .050      2.00        0
                                        OVERFLOW   35.0     6650.     .1241     6.0   6.0      .055     20.00
   97        94         0         4   CHANNEL      11.0     5720.     .0332     4.0   4.0      .050      2.50        0
                                        OVERFLOW   50.0     5434.     .0349     4.0   4.0      .055     20.00
   94        74         0         4   CHANNEL      32.0     2560.     .0120     4.0   4.0      .040      3.50        0
                                        OVERFLOW  150.0     2560.     .0120     8.0   8.0      .050     25.00
   72        71         0         1   CHANNEL      10.0     4480.     .0808     5.0   5.0      .055     15.00        0
   73        71         0         1   CHANNEL      10.0     8000.     .0303     8.0   8.0      .055     15.00        0
   71        59         0         1   CHANNEL      12.0     4820.     .0664     5.0   5.0      .060     15.00        0
   59        46         0         4   CHANNEL      30.0     4020.     .0140     4.0   4.0      .050      4.00        0
                                        OVERFLOW   60.0     4020.     .0140     3.0   3.0      .055     25.00
   63        61         0         1   CHANNEL       9.0     6420.     .0779     5.0   5.0      .070     20.00        0
   64        61         0         1   CHANNEL       9.0     2020.     .0198     5.0   5.0      .070     20.00        0
   61        62         0         1   CHANNEL      12.0     7500.     .0633     5.0   5.0      .070     20.00        0
   60        46         0         1   CHANNEL      12.0     4080.     .1262     5.0   5.0      .060     20.00        0
   46        42         0         4   CHANNEL      25.0     3220.     .0300     3.0   3.0      .055      5.00        0
                                        OVERFLOW   50.0     3220.     .0300     4.0   4.0      .060     25.00
   66        65         0         1   CHANNEL       9.0     3060.     .2026     4.0   4.0      .060     15.00        0
   67        65         0         4   CHANNEL      10.0     6620.     .0853     3.0   3.0      .050      4.00        0
                                        OVERFLOW   45.0     6289.     .0898     3.0   3.0      .060     25.00
   65        62         0         4   CHANNEL      15.0     3960.     .0088     3.0   3.0      .050      4.00        0
                                        OVERFLOW   50.0     3762.     .0093     3.0   3.0      .060     25.00
   62        42         0         1   CHANNEL      12.0     1400.     .2629     5.0   5.0      .070     20.00        0
   69        68         0         1   CHANNEL      10.0     3740.     .1056     6.0   6.0      .055     15.00        0
   70        68         0         1   CHANNEL      12.0     6960.     .0912     6.0   6.0      .055     15.00        0
   68        42         0         1   CHANNEL      12.0     2120.     .1203     5.0   5.0      .060     15.00        0
   41        40         0         1   CHANNEL      12.0     3100.     .2423     5.0   5.0      .060     20.00        0
   42        40         0         4   CHANNEL      20.0     7580.     .0500     3.0   3.0      .055      4.00        0
                                        OVERFLOW   50.0     7580.     .0500     2.0   2.0      .060     25.00
   40        16         0         4   CHANNEL      20.0     3000.     .0330     3.0   3.0      .055      4.00        0
                                        OVERFLOW   50.0     3000.     .0330     2.0   2.0      .060     25.00
   20        18         0         1   CHANNEL      10.0     5340.     .0534     8.0   8.0      .050     15.00        0
   18        17         0         4   CHANNEL      11.0     7600.     .0605     3.0   3.0      .050      3.00        0
                                        OVERFLOW   40.0     7220.     .0637     5.0   5.0      .055     20.00
   21        17         0         1   CHANNEL      10.0     6960.     .1042     5.0   5.0      .060     15.00        0
   17        16         0         4   CHANNEL      11.0     1000.     .0493    10.0  10.0      .040      3.00        0
                                        OVERFLOW   40.0     1000.     .0493     8.0   8.0      .055     20.00
   14        15         0         1   CHANNEL      15.0     3080.     .2662     3.0   3.0      .060     15.00        0
   15         8         0         3                  .0        1.     .0010      .0    .0      .001     10.00        0
   16        15         0         3                  .0        1.     .0010      .0    .0      .001     10.00        0
    8       397         0         3                  .0        1.     .0010      .0    .0      .001     10.00        0
  397         6        14         2   PIPE           .1        1.     .0050      .0    .0      .013       .10        0
                     RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                          .0      .0     207.0   170.0     415.0   476.0     833.0  1330.0    1254.0  2417.0    1677.0  3673.0
                      2104.0  5078.0    2535.0  6591.0    2968.0  8200.0    3405.0  9896.0    3847.0 12853.0    4292.0 16870.0
                      6098.0 37861.0    7880.0 91713.0
   38        37         0         1   CHANNEL      12.0     5060.     .1146    15.0  15.0      .050     15.00        0
   39        37         0         1   CHANNEL      10.0     5140.     .0807    10.0  10.0      .050     20.00        0
   37        23         0         4   CHANNEL      11.0     8160.     .0386     4.0   4.0      .050      3.00        0
                                        OVERFLOW   60.0     7752.     .0406    25.0  25.0      .055     20.00
   35        34         0         1   CHANNEL      10.0     3140.     .0930    10.0  10.0      .050     15.00        0
   36        34         0         1   CHANNEL      12.0     5340.     .0549    15.0  15.0      .050     15.00        0
   34        23         0         4   CHANNEL      11.0     6840.     .0450     4.0   4.0      .050      3.00        0
                                        OVERFLOW   50.0     6498.     .0474    25.0  25.0      .055     20.00
   32        31         0         1   CHANNEL       8.0     3260.     .0883     8.0   8.0      .055     15.00        0
   33        31         0         1   CHANNEL       8.0     5180.     .0788     8.0   8.0      .055     15.00        0
   31        23         0         1   CHANNEL      12.0     2720.     .0393    10.0  10.0      .055     15.00        0
   23        22         0         4   CHANNEL      11.0     4920.     .0315     3.0   3.0      .050      3.00        0
                                        OVERFLOW   50.0     4674.     .0332    10.0  10.0      .055     20.00
   29        28         0         1   CHANNEL       5.0     3060.     .1471     6.0   6.0      .055     15.00        0
   30        28         0         1   CHANNEL      12.0     5780.     .0484    15.0  15.0      .050     15.00        0
   27        26         0         1   CHANNEL      10.0     2540.     .1693    10.0  10.0      .040     15.00        0
   28        26         0         4   CHANNEL      11.0     2520.     .0595    10.0  10.0      .040      3.00        0
                                        OVERFLOW   80.0     2394.     .0626    25.0  25.0      .045     15.00
   25        24         0         1   CHANNEL       6.0     5920.     .1309     8.0   8.0      .050     15.00        0
   26        24         0         4   CHANNEL      12.0     1860.     .0242     4.0   4.0      .050      3.00        0
                                        OVERFLOW   80.0     1767.     .0255    10.0  10.0      .055     15.00
   24        22         0         4   CHANNEL      12.0     1740.     .0287     4.0   4.0      .050      3.00        0
                                        OVERFLOW  100.0     1653.     .0302    10.0  10.0      .055     20.00
   22         8         0         4   CHANNEL      11.0     3600.     .0658     3.0   3.0      .050      3.00        0
                                        OVERFLOW   40.0     3600.     .0658     6.0   6.0      .055     20.00
    9         7         0         4   CHANNEL       3.0    10320.     .1556     3.0   3.0      .060      2.00        0
                                        OVERFLOW   20.0     9804.     .1638     2.0   2.0      .080     25.00
   10         7         0         1   CHANNEL      15.0     3760.     .1293     3.0   3.0      .040     15.00        0
    7         5         0         4   CHANNEL       5.0     4940.     .0656     2.0   2.0      .060      2.50        0
                                        OVERFLOW   25.0     4693.     .0691     2.0   2.0      .080     20.00
    3         2         0         1   CHANNEL      25.0    11000.     .0682     4.0   4.0      .040     15.00        0
    4         2         0         1   CHANNEL      25.0    12780.     .1033     4.0   4.0      .040     15.00        0
    2         1         0         4   CHANNEL       8.0     7240.     .0631     2.0   2.0      .070      3.00        0
                                        OVERFLOW   30.0     6878.     .0664     2.0   2.0      .080     20.00
    6         5         0         4   CHANNEL      35.0     4840.     .0340     2.0   2.0      .055      4.00        0
                                        OVERFLOW   60.0     4840.     .0340     2.0   2.0      .065     25.00
    5         1         0         4   CHANNEL      30.0     4960.     .0240     2.0   2.0      .055      4.00        0
                                        OVERFLOW   55.0     4960.     .0240     2.0   2.0      .065     25.00
    1       245         0         4   CHANNEL      30.0    10240.     .0240     2.0   2.0      .055      4.00        0
                                        OVERFLOW   55.0    10240.     .0240     2.0   2.0      .065     25.00
   11        13         0         1   CHANNEL      12.0     3000.     .1200     3.0   3.0      .040     15.00        0
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      12        13         0        1   CHANNEL        12.0     4180.     .1340     3.0   3.0      .040      15.00         0
      13         5         0        4   CHANNEL        15.0     5240.     .1202     4.0   4.0      .040       5.00         0
                                          OVERFLOW    100.0     4978.     .1265    40.0  40.0      .045      20.00
     248       250         0        4   CHANNEL        25.0     9340.     .0931     4.0   4.0      .060       5.00         0
                                          OVERFLOW    100.0     8873.     .0980    40.0  40.0      .080      20.00
     249       250         0        4   CHANNEL        20.0     3940.     .0964     4.0   4.0      .060       5.00         0
                                          OVERFLOW     80.0     3743.     .1015    40.0  40.0      .080      20.00
     247       246         0        4   CHANNEL        25.0     8120.     .0924     4.0   4.0      .060       5.00         0
                                          OVERFLOW    100.0     7714.     .0973    40.0  40.0      .080      20.00
     250       246         0        4   CHANNEL        25.0     2060.     .0485     4.0   4.0      .060       5.00         0
                                          OVERFLOW    100.0     1957.     .0511    40.0  40.0      .080      20.00
     246       245         0        4   CHANNEL        25.0     4660.     .0676     4.0   4.0      .060       5.00         0
                                          OVERFLOW    100.0     4427.     .0712    40.0  40.0      .080      20.00
     244        52         0        4   CHANNEL        25.0     8700.     .0989     4.0   4.0      .070       5.00         0
                                          OVERFLOW    100.0     8265.     .1041    40.0  40.0      .080      20.00
     245        52         0        4   CHANNEL        30.0     3060.     .0300     3.0   3.0      .070       4.00         0
                                          OVERFLOW     60.0     3060.     .0300     2.0   2.0      .080      20.00
      54        53         0        1   CHANNEL         5.0     4000.     .1500     3.0   3.0      .060      15.00         0
      55        53         0        1   CHANNEL         5.0     5500.     .1382     3.0   3.0      .060      15.00         0
      53        52         0        1   CHANNEL         5.0     1200.     .1083     3.0   3.0      .060      15.00         0
      51        50         0        4   CHANNEL         5.0     5200.     .1327     4.0   4.0      .060       5.00         0
                                          OVERFLOW    100.0     4940.     .1397    40.0  40.0      .080      20.00
      52        50         0        4   CHANNEL        35.0     9160.     .0218     3.0   3.0      .055       4.00         0
                                          OVERFLOW     65.0     9160.     .0218     2.0   2.0      .065      25.00
      50        48         0        4   CHANNEL        40.0     3400.     .0294     5.0   5.0      .060       4.00         0
                                          OVERFLOW    150.0     3400.     .0294    75.0  75.0      .080      25.00
      57        56         0        4   CHANNEL        25.0     8400.     .1262     4.0   4.0      .060       5.00         0
                                          OVERFLOW    100.0     7980.     .1328    40.0  40.0      .080      20.00
      58        56         0        1   CHANNEL         5.0     2200.     .1636     3.0   3.0      .060      15.00         0
      56        50         0        4   CHANNEL        25.0    10000.     .0930     4.0   4.0      .070       5.00         0
                                          OVERFLOW    100.0     9500.     .0979    40.0  40.0      .080      20.00
      49        48         0        1   CHANNEL        12.0     3200.     .2594     3.0   3.0      .060       8.00         0
      48      1626         0        4   CHANNEL        30.0     4700.     .0133     2.0   2.0      .070       5.00         0
                                          OVERFLOW    200.0     4700.     .0133     2.0   2.0      .085      25.00
    1238      1927         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1927       238         0        4   CHANNEL        15.0      964.     .0012     3.5   3.5      .045       4.00         0
                                          OVERFLOW     70.0      964.     .0012     7.5   5.0      .055      20.00
    1295       295         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
     295      1296        10        2   PIPE             .1        1.     .0010      .0    .0      .030        .10         0
                      RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                           .0      .0       8.3      .5      17.8     1.0      28.1    10.5      39.4    18.2      52.5    23.5
                         68.3   278.0      86.7  1321.5     107.1  5035.0     150.0 10000.0
    1296       296         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
     296      1382         6        3                    .0        1.     .0010      .0    .0      .001      10.00      1383
                      DIVERSION TO GUTTER NUMBER1383 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0      24.0      .1     278.0   250.0    1321.0  1290.0    5035.0  5000.0   10000.0  9964.0
    1382      1381         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
     384      1820         0        5   PIPE            3.0     4047.     .0176      .0    .0      .020       3.00         0
                                          OVERFLOW      1.0     4047.     .0176    20.0  20.0      .020      50.00
    1820       383         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1383      1820         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
     383      1405         8        3                    .0        1.     .0010      .0    .0      .001      10.00      1360
                      DIVERSION TO GUTTER NUMBER1360 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0     150.0     1.0     223.0    23.0     285.0    75.0     426.0   201.0    1592.0  1342.0
                       3953.0  3653.0   10000.0  9680.0
    1405      1381         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1381       382         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
     382       381         0        5   PIPE            7.5     1142.     .0020      .0    .0      .015       7.50         0
                                          OVERFLOW      7.5     1142.     .0020    20.0  20.0      .015      50.00
     381      1926         4        3                    .0        1.     .0010      .0    .0      .001      10.00      1366
                      DIVERSION TO GUTTER NUMBER1366 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0     150.0     1.0     342.0   182.0    2438.0  2050.0
     369      1821         0        4   CHANNEL          .5     1030.     .0089    12.0  12.0      .016        .50         0
                                          OVERFLOW     10.0     1030.     .0089    20.0  20.0      .020      10.00
    1926      1821         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1821       380         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
     380       379         0        1   CHANNEL         8.0      754.     .0040     1.5   1.5      .050      10.00         0
     379      1406         4        3                    .0        1.     .0010      .0    .0      .001      10.00      1367
                      DIVERSION TO GUTTER NUMBER1367 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0     180.0      .1     629.0   354.0    3656.0  3293.0
    1406      1378         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1404      1378         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1378       378         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
     378      1925         5        3                    .0        1.     .0010      .0    .0      .001      10.00      1289
                      DIVERSION TO GUTTER NUMBER1289 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0      90.0     1.0      95.0     5.0     363.0   253.0     528.0   390.0
    1925       377         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
     377       242         0        1   CHANNEL         8.0     2090.     .0040     1.5   1.5      .055      10.00         0
    1715      1716         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1716      1517         0        4   CHANNEL        10.0     3321.     .0032     8.0   8.0      .035        .50         0
                                          OVERFLOW     30.0     3321.     .0032    80.0  80.0      .035      15.00
    1515      1517         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1517      1522         0        4   CHANNEL         4.0      851.     .0035     8.0   8.0      .035        .50         0
                                          OVERFLOW     20.0      851.     .0035    60.0  60.0      .035      15.00
    1541      1542         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1542      1544         0        4   CHANNEL         5.0    10122.     .0260     4.0   4.0      .040       2.00         0
                                          OVERFLOW     30.0    10122.     .0260    80.0  80.0      .045      15.00
    1520      1521         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1525      1526         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1528      1428         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1428      1429         0        4   CHANNEL         4.0     1682.     .0131     2.0   2.0      .025       2.00         0
                                          OVERFLOW    400.0     1682.     .0131    40.0  40.0      .035      15.00
    1415      1416         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1550      1551         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1560      1561         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1561      1563         0        4   CHANNEL         3.0     2480.     .1940     4.0   4.0      .050       2.00         0
                                          OVERFLOW     25.0     2480.     .1940    50.0  50.0      .055      15.00
    1565      1566         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
    1566      1563         0        4   CHANNEL         3.0     2240.     .2140     4.0   4.0      .050       2.00         0
                                          OVERFLOW     25.0     2240.     .2140     6.0   6.0      .055      15.00
    1563      1551         0        3                    .0        1.     .0010      .0    .0      .001      10.00         0
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 1551      1553         0         4     CHANNEL          3.0     8900.     .0560     5.0   5.0       .040       2.00        0
                                          OVERFLOW      30.0     8900.     .0560    50.0  50.0       .045      10.00
 1570      1571         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1571      1557         0         1     CHANNEL          5.0     1200.     .2670    40.0  40.0       .055      10.00        0
 1556      1557         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1557      1553         0         4     CHANNEL          3.0     5620.     .0240     5.0   5.0       .040       2.00        0
                                          OVERFLOW      25.0     5620.     .0240    40.0  40.0       .045      15.00
 1553      1416         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1416      1429         0         4     CHANNEL          5.0     4085.     .0225     4.0   4.0       .050       2.00        0
                                          OVERFLOW      25.0     4085.     .0225    40.0  40.0       .055      15.00
 1429      1526         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1526      1532         0         4     CHANNEL          2.0     1410.     .0136     2.0   2.0       .055       2.00        0
                                          OVERFLOW     400.0     1410.     .0136    40.0  40.0       .065      15.00
 1530      1531         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1545      1546         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1575      1576         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1576      1546         0         4     CHANNEL          2.0     3500.     .0229     5.0   5.0       .050       2.00        0
                                          OVERFLOW      30.0     3500.     .0229    50.0  50.0       .055      15.00
 1546      1531         0         4     CHANNEL          5.0     7763.     .0840     4.0   4.0       .050       2.00        0
                                          OVERFLOW      30.0     7763.     .0840    75.0  75.0       .055      15.00
 1531      1532         0         4     CHANNEL          5.0     5288.     .0872     4.0   4.0       .040       2.00        0
                                          OVERFLOW      30.0     5288.     .0872    80.0  80.0       .045      15.00
 1532      1537         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1537      1533         0         4     CHANNEL          2.0     1127.     .0035     2.0   2.0       .035       2.00        0
                                          OVERFLOW     400.0     1127.     .0035     5.0  40.0       .035      15.00
 1414      1534         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1534      1533         0         4     CHANNEL         10.0     1966.     .0080     5.0   5.0       .050       1.00        0
                                          OVERFLOW     400.0     1966.     .0080    50.0   3.0       .065      15.00
 1533      1521         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1521      1544         0         4     CHANNEL          4.0     2633.     .0093     2.0   2.0       .050       2.00        0
                                          OVERFLOW     500.0     2633.     .0093    25.0  25.0       .065      10.00
 1544      1548         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1548      1522         0         4     CHANNEL          4.0     1054.     .0038     8.0   8.0       .035        .50        0
                                          OVERFLOW     500.0     1054.     .0038    60.0  60.0       .035      15.00
 1522      1511         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1510      1511         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1511      1513         0         4     CHANNEL          4.0     3213.     .0057     2.0   2.0       .050       2.00        0
                                          OVERFLOW     512.0     3213.     .0057    50.0  50.0       .060      10.00
 1513      1514         8         3                       .0        1.     .0010      .0    .0       .001      10.00     1508
                  DIVERSION TO GUTTER NUMBER1508 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0     50.0       .1    140.0    48.0    415.0   192.0    1791.0  1299.0   3930.0  3176.0
                   7762.0   6551.0  15011.0  13210.0
 1514      1442         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1442      1935         0         4     CHANNEL          2.0     2252.     .0097     4.0   4.0       .040       1.00        0
                                          OVERFLOW     300.0     2252.     .0097    80.0  80.0       .060      15.00
 1262      1916         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1916      1935         0         4     CHANNEL          2.0     1211.     .0046     5.0   3.0       .035       1.00        0
                                          OVERFLOW     400.0     1211.     .0046   100.0   3.0       .035      20.00
 1935       262         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
  262       263         0         4     CHANNEL          2.0      529.     .0058     5.0   3.0       .035       1.00        0
                                          OVERFLOW     500.0      529.     .0058   150.0   3.0       .035      20.00
  263      1905         8         3                       .0        1.     .0010      .0    .0       .001      10.00      266
                  DIVERSION TO GUTTER NUMBER 266 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0    175.0    174.9    412.0   185.0    908.0   198.0    1902.0   212.0   3161.0   228.0
                   6477.0    233.0  13854.0    256.0
 1905       264         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
  264       265         0         4     CHANNEL          2.0     1138.     .0017     5.0   3.0       .035        .50        0
                                          OVERFLOW     600.0     1138.     .0017   150.0   3.0       .035      20.00
  265       269         8         3                       .0        1.     .0010      .0    .0       .001      10.00     1267
                  DIVERSION TO GUTTER NUMBER1267 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0    170.0    169.9    227.0   195.0    710.0   516.0    1689.0  1249.0   2933.0  1956.0
                   6244.0   3358.0  13598.0   6585.0
  269      1294         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1294       294         0         4     CHANNEL          2.0     1043.     .0027     4.0   4.0       .025       1.00        0
                                          OVERFLOW     375.0     1043.     .0027    80.0   3.0       .035      15.00
  304       294         0         1     CHANNEL          8.0     2370.     .0060     5.0   5.0       .035      10.00        0
  299       303         0         4     CHANNEL           .5     3612.     .0400    12.0  12.0       .016        .50        0
                                          OVERFLOW      24.0     3612.     .0400    20.0  20.0       .020      10.00
  301       300         0         4     CHANNEL           .5     3743.     .0800    12.0  12.0       .016        .50        0
                                          OVERFLOW      24.0     3743.     .0800    20.0  20.0       .020      10.00
  300      1922         5         2     PIPE              .1        1.     .0010      .0    .0       .030        .10        0
                  RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                       .0       .0      5.4     10.0     28.7    11.0     36.6    32.0      39.3   468.0
 1922       303         0         4     CHANNEL           .5      899.     .0667    12.0  12.0       .016        .50        0
                                          OVERFLOW      10.0      899.     .0667    20.0  20.0       .020      10.00
  303       298         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
  298       297        11         2     PIPE              .1        1.     .0010      .0    .0       .030        .10        0
                  RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                       .0       .0       .1     15.0       .5    45.0      1.4    94.0       2.9   130.0      5.3   158.0
                      9.3    182.0     12.2    192.0     15.9   225.0     20.4   286.0      25.0   827.0
  297      1921         0         4     CHANNEL          6.0     5106.     .0250     3.0   3.0       .045       6.00        0
                                          OVERFLOW      50.0     6800.     .0188     3.0   3.0       .035      10.00
 1917      1921         0         4     CHANNEL          5.0     1894.     .0079     8.0   8.0       .035       1.00        0
                                          OVERFLOW      40.0     1894.     .0079    80.0  80.0       .035      15.00
 1921      1920         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
 1920       294         0         4     CHANNEL         18.0      785.     .0013     6.0   6.0       .035       6.00        0
                                          OVERFLOW     100.0      785.     .0013    12.0  12.0       .035      15.00
  294       280         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
  280      1293         6         3                       .0        1.     .0010      .0    .0       .001      10.00     1295
                  DIVERSION TO GUTTER NUMBER1295 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0    295.0      1.0    370.0    42.0   1046.0   661.0    2827.0  2327.0   8734.0  8169.0
 1293       293         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
  293       267         0         5     PIPE             8.5      757.     .0020      .0    .0       .015       8.50        0
                                          OVERFLOW       8.5      757.     .0020      .0    .0       .015      20.00
 1267       267         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
  267       268         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
  268      1291         8         2     PIPE              .1        1.     .0010      .0    .0       .030        .10        0
                  RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                       .0       .0      1.4     81.0      5.0   267.0     10.4   465.0      16.9   632.0     25.0  1145.0
                     35.1   1888.0    140.0  10000.0
 1291       291         0         3                       .0        1.     .0010      .0    .0       .001      10.00        0
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   291       1290          6          3                         .0          1.     .0010       .0     .0        .001       10.00    1923
                        DIVERSION TO GUTTER NUMBER1923 - TOTAL Q VS DIVERTED Q IN CFS
                             .0       .0     515.0     1.0    1249.0    471.0     1956.0   1098.0     6585.0   5685.0    10000.0  9000.0
  1290        290          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
   290       1924          0          4     CHANNEL           30.0       1375.     .0017      4.0    4.0        .045        6.00       0
                                              OVERFLOW       100.0       1375.     .0017     20.0   20.0        .050       15.00
  1289       1924          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1924        289          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
   289        242          0          4     CHANNEL           30.0       1962.     .0017      4.0    4.0        .045        6.00       0
                                              OVERFLOW       100.0       1962.     .0017     20.0   20.0        .050       15.00
  1505       1506          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1410       1411          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1420       1421          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1435       1436          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1436       1438          0          4     CHANNEL            2.0       3730.     .0350      4.0    4.0        .050        3.00       0
                                              OVERFLOW        30.0       3730.     .0350     16.0   16.0        .055       15.00
  1430       1431          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1431       1438          0          4     CHANNEL            2.0       1670.     .0820      4.0    4.0        .040        1.00       0
                                              OVERFLOW        12.0       1670.     .0820     15.0   15.0        .045       15.00
  1438       1426          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1425       1426          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1426       1421          0          4     CHANNEL            5.0       2319.     .0190      8.0    8.0        .040        2.00       0
                                              OVERFLOW        40.0       2319.     .0190     75.0   75.0        .045       15.00
  1445       1446          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1446       1453          0          4     CHANNEL            2.0       6667.     .0606      3.0    3.0        .040        3.00       0
                                              OVERFLOW        25.0       6667.     .0606      6.0    6.0        .045       15.00
  1645       1646          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1646       1643          0          4     CHANNEL            5.0       5300.     .1450      4.0    4.0        .060        2.00       0
                                              OVERFLOW        25.0       5300.     .1450     15.0   15.0        .065       15.00
  1640       1641          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1641       1643          0          4     CHANNEL            2.0       5800.     .0160      3.0    3.0        .060        3.00       0
                                              OVERFLOW        25.0       5800.     .0160      8.0    8.0        .065       15.00
  1643       1631          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1630       1631          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1631       1628          0          4     CHANNEL           10.0       7611.     .0730      4.0    4.0        .040        3.00       0
                                              OVERFLOW        40.0       7611.     .0730     10.0   10.0        .045       15.00
  1625       1626          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1635       1636          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1636       1626          0          1     CHANNEL            2.0       4200.     .0840      8.0    8.0        .040       10.00       0
  1626       1628          0          4     CHANNEL           25.0       1908.     .0205      4.0    4.0        .070        2.00       0
                                              OVERFLOW       100.0       1908.     .0205     75.0   75.0        .075       15.00
  1628       1611          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1610       1611          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1611       1928          0          4     CHANNEL           30.0       4400.     .0290      4.0    4.0        .060        2.50       0
                                              OVERFLOW       150.0       4400.     .0290     75.0   75.0        .070       15.00
  1605       1606          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1665       1666          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1666       1606          0          4     CHANNEL            3.0       6900.     .2130      3.0    3.0        .050        2.00       0
                                              OVERFLOW        20.0       6900.     .2130      2.0    2.0        .055       10.00
  1606       1928          0          4     CHANNEL            5.0       5987.     .0812      4.0    4.0        .045        2.00       0
                                              OVERFLOW        25.0       5987.     .0812      3.0    3.0        .060       15.00
  1928       1601          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1600       1601          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1601       1603          0          4     CHANNEL           25.0       1264.     .0290      6.0    6.0        .060        2.50       0
                                              OVERFLOW        85.0       1264.     .0290     80.0   80.0        .070       15.00
  1710       1711          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1711       1712          0          4     CHANNEL            5.0       5430.     .0479      4.0    4.0        .035        1.00       0
                                              OVERFLOW        30.0       5430.     .0479      5.0    5.0        .035       15.00
  1615       1616          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1616       1623          0          4     CHANNEL            2.0       6409.     .0620      3.0    3.0        .040        3.00       0
                                              OVERFLOW        20.0       6409.     .0620      5.0    5.0        .045       15.00
  1660       1661          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1661       1651          0          4     CHANNEL            3.0       9600.     .1670      4.0    4.0        .060        3.00       0
                                              OVERFLOW        25.0       9600.     .1670      3.0    3.0        .065       15.00
  1650       1651          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1651       1653          0          4     CHANNEL            5.0       4100.     .0860      4.0    4.0        .050        3.00       0
                                              OVERFLOW        25.0       4100.     .0860      3.0    3.0        .055       15.00
  1655       1656          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1656       1653          0          4     CHANNEL            3.0      10800.     .1170      4.0    4.0        .050        3.00       0
                                              OVERFLOW        25.0      10800.     .1170      3.0    3.0        .055       15.00
  1653       1621          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1620       1621          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1621       1623          0          4     CHANNEL            5.0      10100.     .0320      5.0    5.0        .045        3.00       0
                                              OVERFLOW        35.0      10100.     .0320      2.0    2.0        .060       15.00
  1623       1624          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1705       1624          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1624       1712          0          4     CHANNEL            2.0       2490.     .0380      5.0    5.0        .050        2.00       0
                                              OVERFLOW        25.0       2490.     .0380      5.0    5.0        .050       10.00
  1712       1929          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1929       1603          0          4     CHANNEL           10.0       1172.     .0043     10.0   10.0        .035         .50       0
                                              OVERFLOW        20.0       1172.     .0043     40.0   40.0        .035       15.00
  1603       1451          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1450       1451          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1451       1453          0          4     CHANNEL           30.0       2963.     .0110      6.0    6.0        .060        2.50       0
                                              OVERFLOW       110.0       2963.     .0110     80.0   80.0        .070       15.00
  1453       1441          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1440       1441          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1441       1421          0          4     CHANNEL           30.0       3235.     .0078      4.0    4.0        .060        2.50       0
                                              OVERFLOW       110.0       3235.     .0078     75.0   75.0        .070       15.00
  1421       1423          0          4     CHANNEL           30.0        800.     .0120      4.0    4.0        .060        2.50       0
                                              OVERFLOW       120.0        800.     .0120     75.0   75.0        .090       15.00
  1423       1424          8          3                         .0          1.     .0010       .0     .0        .001       10.00    1528
                        DIVERSION TO GUTTER NUMBER1528 - TOTAL Q VS DIVERTED Q IN CFS
                             .0       .0    1000.0     1.0    2000.0    114.0     3100.0    335.0     4000.0    597.0     5683.0  1262.0
                          10000.0   2575.0   18600.0  5243.0
  1424       1411          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1411       1412          0          4     CHANNEL           30.0       3369.     .0084      4.0    4.0        .060        2.50       0
                                              OVERFLOW       160.0       3369.     .0084     75.0   75.0        .065       15.00
  1412       1413          0          3                         .0          1.     .0010       .0     .0        .001       10.00       0
  1413       1509          9          3                         .0          1.     .0010       .0     .0        .001       10.00    1414
                        DIVERSION TO GUTTER NUMBER1414 - TOTAL Q VS DIVERTED Q IN CFS
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                           .0      .0     500.0      1.0     999.0    125.0    1886.0    841.0    2765.0  1456.0     3403.0  1937.0
                       4421.0  2668.0    7425.0   5187.0   13357.0 10368.0
1509        1800           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1490        1491           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1455        1456           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1938        1480           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1480        1481           0          4       CHANNEL         5.0      2400.     .0500      2.0   2.0        .040         2.00        0
                                                OVERFLOW     20.0      2400.     .0500     10.0  10.0        .045        10.00
1481        1482           7          2       PIPE             .0         1.     .0010       .0    .0        .030          .10        0
                     RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                           .0      .0     308.0     18.0     624.0     76.0     947.0    179.0    1279.0   318.0     1618.0  1676.0
                       1965.0  4700.0
1482        1456           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1456        1457           0          1       CHANNEL         2.0      4450.     .0363     80.0  80.0        .030        20.00        0
1457        1491           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1491        1931           0          4       CHANNEL         5.0     10236.     .0090      4.0   4.0        .050         2.00        0
                                                OVERFLOW     25.0     10236.     .0090     60.0  60.0        .065        15.00
1460        1461           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1461        1931           0          4       CHANNEL         3.0      2286.     .0280      4.0   4.0        .050         2.00        0
                                                OVERFLOW     20.0      2286.     .0280     24.0  24.0        .055        15.00
1931        1933           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1933        1467           0          4       CHANNEL         5.0       403.     .0099      2.0   2.0        .020         2.00        0
                                                OVERFLOW     25.0       403.     .0099     10.0  10.0        .025        15.00
1465        1932           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1932        1467           0          4       CHANNEL         4.0      1591.     .0289      8.0   8.0        .035          .50        0
                                                OVERFLOW     25.0      1591.     .0289      4.0   4.0        .035        15.00
1467        1468           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1468        1800           0          4       CHANNEL         5.0      2357.     .0180      2.0   2.0        .020         2.00        0
                                                OVERFLOW     25.0      2357.     .0180     10.0  10.0        .025        15.00
1800        1506           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1506        1507           0          4       CHANNEL        33.0      8099.     .0054      4.0   4.0        .060         2.50        0
                                                OVERFLOW    800.0      8099.     .0054     10.0  10.0        .065        15.00
1508        1507           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1507        1512           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1512          44           0          4       CHANNEL        33.0      1367.     .0064      4.0   4.0        .060         2.50        0
                                                OVERFLOW    308.0      1367.     .0064     80.0  80.0        .065        15.00
1500        1501           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1501          44           0          4       CHANNEL         5.0      8609.     .0212      2.0   2.0        .040         2.00        0
                                                OVERFLOW     20.0      8609.     .0212     10.0  10.0        .045        15.00
  44         261           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 261        1427           9          3                        .0         1.     .0010       .0    .0        .001        10.00     1262
                     DIVERSION TO GUTTER NUMBER1262 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0     500.0      1.0     875.0     35.0    1920.0    315.0    2709.0   660.0     3916.0  1323.3
                       5586.0  2377.0    9768.0   5344.0   18394.0 11928.0
1427         243           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 243         242           0          4       CHANNEL        65.0      2991.     .0112      2.0   2.0        .043         2.50        0
                                                OVERFLOW    650.0      2991.     .0112    100.0 100.0        .055        15.00
 242         241           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 241         240           0          4       CHANNEL        65.0      5732.     .0100      2.0   2.0        .043         3.00        0
                                                OVERFLOW   1200.0      5732.     .0100    200.0 200.0        .055        20.00
 240         238           0          4       CHANNEL        65.0      2861.     .0100      2.0   2.0        .050         3.00        0
                                                OVERFLOW   1200.0      2861.     .0100    200.0 200.0        .075        20.00
 238         237           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 237         251           5          3                        .0         1.     .0010       .0    .0        .001        10.00      389
                     DIVERSION TO GUTTER NUMBER 389 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0    2060.0      1.0    4980.0   2580.0    6630.0   3530.0   11150.0  7500.0
 389        1906           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1906        1909           0          4       CHANNEL        10.0      3340.     .0042      8.0   8.0        .025          .50        0
                                                OVERFLOW   1200.0      3340.     .0042     80.0  80.0        .025        15.00
 251         233           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 235         239           0          1       CHANNEL         1.0      3509.     .0050     50.0  50.0        .020        10.00        0
 239         234           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 234         232           0          4       CHANNEL         2.0      2072.     .0044      3.0   3.0        .050         2.00        0
                                                OVERFLOW     50.0      2072.     .0044     50.0  50.0        .035        10.00
 233         232           0          4       CHANNEL        65.0      3076.     .0100      2.0   2.0        .050         4.00        0
                                                OVERFLOW    600.0      3076.     .0100    200.0 200.0        .080        20.00
 232         236           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 236         252           5          3                        .0         1.     .0010       .0    .0        .001        10.00     1403
                     DIVERSION TO GUTTER NUMBER1403 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0    2060.0      1.0    2400.0    100.0    3100.0    500.0   10000.0  2500.0
1403        1599           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 252         231           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1357         357           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 357        1401           6          3                        .0         1.     .0010       .0    .0        .001        10.00     1325
                     DIVERSION TO GUTTER NUMBER1325 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0      26.0       .1     263.0    235.0     391.0    361.0     995.0   960.0     5000.0  4950.C
1401        1387           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1387         387           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 387        1908           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1908        1320           0          4       CHANNEL         2.0      1718.     .0076      3.0   3.0        .025         2.00        0
                                                OVERFLOW    600.0      1718.     .0076     80.0  80.0        .025        10.00
 266         376           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 376         375           0          1       CHANNEL         4.0      1569.     .0041      4.0   4.0        .050        10.00        0
 375        1374           4          3                        .0         1.     .0010       .0    .0        .001        10.00     1404
                     DIVERSION TO GUTTER NUMBER1404 - TOTAL Q VS DIVERTED Q IN CFS
                           .0      .0      24.0       .1     135.0    100.0     540.0    500.0
1374         374           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 374         372           0          4       CHANNEL         4.0      2538.     .0115      3.0   3.0        .045         2.00        0
                                                OVERFLOW     20.0      2538.     .0115     20.0  20.0        .035        10.00
 373         372           0          4       CHANNEL         3.0      1779.     .0075      4.0   4.0        .045         1.00        0
                                                OVERFLOW     20.0      1779.     .0075     20.0  20.0        .035        10.00
1367         367           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 367         372           0          4       CHANNEL          .5      2663.     .0103     12.0  12.0        .016          .50        0
                                                OVERFLOW     10.0      2663.     .0103     20.0  20.0        .020        10.00
 372         371           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 371         311           0          4       CHANNEL        10.0      2893.     .0078      2.0   2.0        .045         1.00        0
                                                OVERFLOW     10.0      2893.     .0078     50.0  50.0        .035        10.00
1339        1822           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
1348         348           0          3                        .0         1.     .0010       .0    .0        .001        10.00        0
 348        1937           5          3                        .0         1.     .0010       .0    .0        .001        10.00     1331
                     DIVERSION TO GUTTER NUMBER1331 - TOTAL Q VS DIVERTED Q IN CFS
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                               .0       .0      31.0     30.0     542.0    335.0      795.0   466.0     1394.0    766.0
  1937      1386        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   385      1386        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1386       386        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   386       395        6       3                      .0        1.     .0010       .0    .0      .001      10.00     1407
                          DIVERSION TO GUTTER NUMBER1407 - TOTAL Q VS DIVERTED Q IN CFS
                               .0       .0     206.0      1.0     394.0     64.0      902.0   273.0     2616.0    572.0    5000.0 1100.0
   395       394        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   394      1822        0       4    CHANNEL           .5     1000.     .0061     12.0  12.0      .016        .50        0
                                       OVERFLOW      10.0     1000.     .0061     20.0  20.0      .020      10.00
  1822       339        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   339      1313        4       3                      .0        1.     .0010       .0    .0      .001      10.00     1336
                          DIVERSION TO GUTTER NUMBER1336 - TOTAL Q VS DIVERTED Q IN CFS
                               .0       .0      30.0     20.0     300.0    200.0     3000.0  2000.0
  1313      1939        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1362       362        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   363       362        0       1    CHANNEL          1.0     4078.     .0121     20.0   5.0      .020      10.00        0
   362       398        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   398      1396       10       2    PIPE              .1        1.     .0010       .0    .0      .030        .10        0
                          RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                               .0       .0        .4     26.0       1.3    138.0        2.1   200.0        2.4    260.0       2.8  360.0
                              3.4    510.0       4.0    893.0       5.0   1809.0       15.0 10000.0
  1396       396        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   396       308        7       3                      .0        1.     .0010       .0    .0      .001      10.00      385
                          DIVERSION TO GUTTER NUMBER 385 - TOTAL Q VS DIVERTED Q IN CFS
                               .0       .0     260.0       .1     360.0     60.0      510.0   190.0      893.0    545.0    1809.0 1388.0
                           10000.0   9550.0
   308       314        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   314      1939        0       1    CHANNEL          8.0      600.     .0048       .1   2.0      .050      15.00        0
  1939       313        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   313      1910        6       3                      .0        1.     .0010       .0    .0      .001      10.00     1409
                          DIVERSION TO GUTTER NUMBER1409 - TOTAL Q VS DIVERTED Q IN CFS
                               .0       .0     260.0       .1     389.0    129.0      470.0   195.0      648.0    358.0   10000.0 9500.0
  1910      1940        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1366       366        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   366       344        0       4    CHANNEL           .5     5533.     .0079     12.0  12.0      .016        .50        0
                                       OVERFLOW      10.0     5533.     .0079     20.0  20.0      .020      10.00
   344      1408        4       3                      .0        1.     .0010       .0    .0      .001      10.00     1339
                          DIVERSION TO GUTTER NUMBER1339 - TOTAL Q VS DIVERTED Q IN CFS
                               .0       .0      25.0       .1      50.0     25.0     2000.0    35.0
  1408      1940        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1940       312        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   312       311        0       1    CHANNEL          8.0     1520.     .0068      2.0   2.0      .050      10.00        0
   311       358        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   358       393        0       4    CHANNEL          8.0     2401.     .0100      1.5   1.5      .030       4.50        0
                                       OVERFLOW      20.0     2401.     .0100     50.0  50.0      .020      10.00
   393      1357        8       3                      .0        1.     .0010       .0    .0      .001      10.00     1393
                          DIVERSION TO GUTTER NUMBER1393 - TOTAL Q VS DIVERTED Q IN CFS
                               .0       .0     240.0      1.0     588.0     79.0      874.0   150.0     1822.0    391.0    2281.0  509.0
                            3048.0    704.0    4515.0   1075.0
  1393      1941        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1941       392        0       4    CHANNEL          4.0      423.     .0142      4.0   4.0      .030        .50        0
                                       OVERFLOW      30.0      423.     .0142     12.0  12.0      .032      15.00
  1325       325        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1331       331        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1407       331        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   331       337        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   337       328        0       4    CHANNEL           .5     2862.     .0066     12.0  12.0      .016        .50        0
                                       OVERFLOW      10.0     2862.     .0066     20.0  20.0      .020      10.00
  1329       328        0       4    CHANNEL           .5     2288.     .0088     12.0  12.0      .016        .50        0
                                       OVERFLOW      10.0     2288.     .0088     20.0  20.0      .020      10.00
  1340       340        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   340      1333        6       3                      .0        1.     .0010       .0    .0      .001      10.00     1348
                          DIVERSION TO GUTTER NUMBER1348 - TOTAL Q VS DIVERTED Q IN CFS
                               .0       .0      66.0     31.0     833.0    542.0     1194.0   795.0     2037.0   1394.0    3730.0 2560.0
  1333       333        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   333       332        0       1    CHANNEL          1.0     2969.     .0047     50.0   5.0      .020      20.00        0
   341      1334        6       3                      .0        1.     .0010       .0    .0      .001      10.00     1340
                          DIVERSION TO GUTTER NUMBER1340 - TOTAL Q VS DIVERTED Q IN CFS
                               .0       .0      71.0     66.0    1120.0    833.0     1616.0  1194.0     2776.0   2037.0    5110.0 3730.0
  1334       334        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   334       332        0       1    CHANNEL          1.0     2967.     .0047      5.0  50.0      .020      20.00        0
   332      1308        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1308      1307        4       3                      .0        1.     .0010       .0    .0      .001      10.00     1306
                          DIVERSION TO GUTTER NUMBER1306 - TOTAL Q VS DIVERTED Q IN CFS
                               .0       .0      56.2     56.1    1080.0     60.5     2500.0    65.0
  1307      1305        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1306       330        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   346       345        0       4    CHANNEL           .5     1855.     .0179     12.0  12.0      .016        .50        0
                                       OVERFLOW      10.0     1855.     .0179     20.0  20.0      .020      10.00
   345       359        0       4    CHANNEL           .5     3689.     .0097     12.0  12.0      .016        .50        0
                                       OVERFLOW      10.0     3689.     .0097     20.0  20.0      .020      10.00
   350      1915        0       5    PIPE             2.0     2980.     .0074       .0    .0      .015       2.00        0
                                       OVERFLOW       1.0     2980.     .0074     20.0  20.0      .020      20.00
  1360       360        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1923       292        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   292       360        0       4    CHANNEL          1.0     1500.     .0027     50.0  50.0      .020       1.00        0
                                       OVERFLOW      15.0     1500.     .0027      4.0   4.0      .020      10.00
   360      1934        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1934      1919        0       4    CHANNEL          1.0     1500.     .0027     50.0  50.0      .020       1.00        0
                                       OVERFLOW      15.0     1500.     .0027      4.0   4.0      .020      10.00
   353      1919        0       4    CHANNEL           .5     1591.     .0037     12.0  12.0      .016        .50        0
                                       OVERFLOW      10.0     1591.     .0037     20.0  20.0      .020      10.00
  1919       352        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
   352      1812        7       2    PIPE              .1        1.     .0010       .0    .0      .030        .10        0
                          RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                               .0       .0        .7     20.0       2.2     31.0        5.8    39.0       12.8    300.0      23.3 3986.0
                             50.0  10000.0
  1812      1813        0       3                      .0        1.     .0010       .0    .0      .001      10.00        0
  1813      1814        7       3                      .0        1.     .0010       .0    .0      .001      10.00     1815
                          DIVERSION TO GUTTER NUMBER1815 - TOTAL Q VS DIVERTED Q IN CFS
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                          .0        .0      40.0        .1     314.0      77.0    1075.0     357.0    2228.0     783.0    4144.0    1719.0
                      6379.0    2711.0
  1814       351           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   351      1913           0         5    PIPE             2.0    2056.     .0117       .0    .0       .015        2.00         0
                                            OVERFLOW      40.0    2056.     .0117      8.0   8.0       .035       15.00
  1815      1816           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1818      1817           0         4    CHANNEL          2.0     354.     .0100      4.0   4.0       .020        1.00         0
                                            OVERFLOW      12.0     354.     .0100     10.0  10.0       .030       10.00
  1816      1817           0         4    CHANNEL          6.0     837.     .0037     12.0  12.0       .015        1.00         0
                                            OVERFLOW      30.0     837.     .0037      8.0   3.0       .030       15.00
  1817       354           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   354      1913           0         5    PIPE             1.5    1345.     .2800       .0    .0       .015        1.50         0
                                            OVERFLOW      24.0    1345.     .2800     20.0   5.0       .035       15.00
  1913      1914           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1914      1915           0         5    PIPE             2.0     756.     .0066       .0    .0       .016        2.00         0
                                            OVERFLOW       1.0     756.     .0066     20.0  20.0       .020       15.00
  1915       347           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   347       359           0         5    PIPE             4.0    2229.     .0173       .0    .0       .015        4.00         0
                                            OVERFLOW      10.0    2229.     .0173     20.0  20.0       .020       20.00
   349       359           0         1    CHANNEL         10.0    2788.     .0217     20.0  20.0       .035       10.00         0
   355       359           0         5    PIPE             2.0    3762.     .0121       .0    .0       .020        2.00         0
                                            OVERFLOW       1.0    3762.     .0121      5.0  20.0       .020       10.00
   359       356           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   356      1343          10         2    PIPE              .1       1.     .0010       .0    .0       .030         .10         0
                     RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                          .0        .0        .3      14.0       3.4     138.0       5.3     200.0       6.6     210.0       7.7     230.0
                         9.7     332.0      14.5    1712.0      18.2    2617.0      23.4    5064.0
  1343       343           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   343      1342           7         3                      .0       1.     .0010       .0    .0       .001       10.00      1362
                     DIVERSION TO GUTTER NUMBER1362 - TOTAL Q VS DIVERTED Q IN CFS
                          .0        .0     230.0     229.0     332.0     260.0    1712.0     360.0    2617.0     510.0    5064.0     893.0
                      9890.0    1680.0
  1342       342           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   342      1335           6         3                      .0       1.     .0010       .0    .0       .001       10.00      1341
                     DIVERSION TO GUTTER NUMBER1341 - TOTAL Q VS DIVERTED Q IN CFS
                          .0        .0      72.0      71.0    1352.0    1120.0    2107.0    1616.0    4171.0    2776.0    8280.0    5110.0
  1341       341           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1335       335           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   335      1301           0         1    CHANNEL         10.0    3343.     .0047     18.0   5.0       .045       20.00         0
  1301      1302           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1302      1303           4         3                      .0       1.     .0010       .0    .0       .001       10.00      1304
                     DIVERSION TO GUTTER NUMBER1304 - TOTAL Q VS DIVERTED Q IN CFS
                          .0        .0     585.0       1.0    1973.0    1149.0    3964.0    2984.0
  1303       330           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1304      1305           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1305      1599           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   330       329           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   329       328           0         1    CHANNEL          8.0    1804.     .0012      3.5   3.5       .024       20.00         0
  1309      1311           6         3                      .0       1.     .0010       .0    .0       .001       10.00      1312
                     DIVERSION TO GUTTER NUMBER1312 - TOTAL Q VS DIVERTED Q IN CFS
                          .0        .0     725.2        .1     824.2        .2     981.0      51.0    3918.0    1261.0    6125.0    2048.0
  1311       327           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   368      1330           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1312      1330           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1330      1332           0         5    PIPE             1.5    3079.     .0078     10.0  10.0       .025        1.50         0
                                            OVERFLOW      28.0    3079.     .0078      5.0   5.0       .040        5.00
  1332      1368           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1368      1369           3         3                      .0       1.     .0010       .0    .0       .001       10.00      1371
                     DIVERSION TO GUTTER NUMBER1371 - TOTAL Q VS DIVERTED Q IN CFS
                          .0        .0     245.0        .1    3280.0     418.6
  1369      1370           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1370      1365           0         5    PIPE             1.5    1286.     .0030       .0    .0       .025        1.50         0
                                            OVERFLOW      30.0    1286.     .0030     10.0  10.0       .025       15.00
  1371      1372           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1372      1599           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   328      1309           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   327       326           0         4    CHANNEL          8.0    1305.     .0008      3.5   3.5       .024        4.00         0
                                            OVERFLOW      40.0    1305.     .0008      5.7   7.5       .028       20.00
  1409       310           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1336       336           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   336      1310           4         3                      .0       1.     .0010       .0    .0       .001       10.00      1942
                     DIVERSION TO GUTTER NUMBER1942 - TOTAL Q VS DIVERTED Q IN CFS
                          .0        .0      20.0      10.0     200.0     100.0    2000.0    1000.0
  1942      1940           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1310       310           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   310       315           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   315       317           0         4    CHANNEL           .5    3664.     .0088     12.0  12.0       .016         .50         0
                                            OVERFLOW      10.0    3664.     .0088     20.0  20.0       .020       10.00
   316       317           0         4    CHANNEL           .5    2903.     .0079     12.0  12.0       .016         .50         0
                                            OVERFLOW      10.0    2903.     .0079     20.0  20.0       .020       10.00
   317       326           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   326       325           0         4    CHANNEL          8.0     458.     .0008      3.5   3.5       .024        4.00         0
                                            OVERFLOW      40.0     458.     .0008      5.7   7.5       .028       20.00
   325       324           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   324      1392           7         3                      .0       1.     .0010       .0    .0       .001       10.00      1402
                     DIVERSION TO GUTTER NUMBER1402 - TOTAL Q VS DIVERTED Q IN CFS
                          .0        .0     725.1        .1     824.0      98.0     930.0     180.0    2657.0    1833.0    4077.0    3077.0
                     10000.0    8800.0
  1402      1323           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
  1323       323           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   323      1321           7         3                      .0       1.     .0010       .0    .0       .001       10.00      1387
                     DIVERSION TO GUTTER NUMBER1387 - TOTAL Q VS DIVERTED Q IN CFS
                          .0        .0      50.0      49.9     254.0      60.0    1565.0     100.0    2841.0     150.0    4250.0     200.0
                      8800.0     400.0
  1392       392           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   392       391           0         3                      .0       1.     .0010       .0    .0       .001       10.00         0
   391      1911           0         4    CHANNEL         15.0    1048.     .0012      3.5   3.5       .045        5.00         0
                                            OVERFLOW      55.0    1048.     .0012      4.0   7.5       .055       20.00
   338       318           0         4    CHANNEL          1.0    2263.     .0089      1.0   1.0       .045        1.00         0
                                            OVERFLOW      10.0    2263.     .0089     50.0  50.0       .035       10.00
   318      1911           0         4    CHANNEL          8.0    2821.     .0012      3.0   3.0       .045        1.50         0
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                                              OVERFLOW     10.0    2821.      .0012     20.0  20.0      .035       10.00
 1911        1912         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1912         390         0          4      CHANNEL        15.0    1048.      .0012      3.5   3.5      .045        4.00        0
                                              OVERFLOW     70.0    1048.      .0012      7.5   5.0      .055       20.00
  390        1238         7          3                       .0       1.      .0010       .0    .0      .001       10.00      388
                     DIVERSION TO GUTTER NUMBER 388 - TOTAL Q VS DIVERTED Q IN CFS
                           .0     .0     200.0     1.0     205.0     5.0     274.0    73.0    431.0     229.0     726.0 523.0
                       5000.0 4795.0
  388        1907         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1907        1320         0          4      CHANNEL         4.0    2175.      .0064      3.0   3.0      .025        2.00        0
                                              OVERFLOW    300.0    2175.      .0064     80.0  80.0      .025       15.00
 1320         320         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
  320        1909         0          4      CHANNEL         6.0    1412.      .0087      3.0   3.0      .035        2.00        0
                                              OVERFLOW    700.0    1412.      .0087    100.0 100.0      .035       10.00
 1909         322         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1321         321         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
  321        1337         0          1      CHANNEL        10.0    1092.      .0080     50.0  50.0      .045       15.00        0
 1337        1338         3          3                       .0       1.      .0010       .0    .0      .001       10.00     1363
                     DIVERSION TO GUTTER NUMBER1363 - TOTAL Q VS DIVERTED Q IN CFS
                           .0     .0      10.0      .1    3500.0  1910.4
 1338        1361         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1361        1320         0          5      PIPE            1.5     823.      .0100       .0    .0      .025        1.50        0
                                              OVERFLOW     50.0     823.      .0100     20.0  20.0      .045       15.00
  361        1364         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1363        1364         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1364        1365         0          5      PIPE            1.5    1547.      .0078       .0    .0      .025        1.50        0
                                              OVERFLOW     10.0    1547.      .0078     50.0  50.0      .045       20.00
 1365        1944         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
  370        1944         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1944        1945         0          5      PIPE            4.5    1283.      .0109       .0    .0      .025        4.50        0
                                              OVERFLOW     10.0    1283.      .0109     50.0  50.0      .035       20.00
 1945        1373         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1373        1375         3          3                       .0       1.      .0010       .0    .0      .001       10.00     1377
                     DIVERSION TO GUTTER NUMBER1377 - TOTAL Q VS DIVERTED Q IN CFS
                           .0     .0     195.7      .1    5200.0  3985.2
 1377        1372         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1375        1376         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1376        1946         0          4      CHANNEL         8.0     750.      .0100      3.0   3.0      .045        6.00        0
                                              OVERFLOW     50.0     750.      .0100     20.0  20.0      .050        5.00
  322        1943         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1943        1946         0          4      CHANNEL        20.0    1443.      .0083      4.0   4.0      .045        6.00        0
                                              OVERFLOW    400.0    1443.      .0083     50.0  50.0      .060       10.00
 1946         319         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
  319         271         0          4      CHANNEL        30.0    4190.      .0086      4.0   4.0      .065        7.00        0
                                              OVERFLOW    500.0    4190.      .0086     50.0  50.0      .060       10.00
  231         271         0          4      CHANNEL       130.0    5118.      .0074      4.0   4.0      .055        8.00        0
                                              OVERFLOW    600.0    5118.      .0074     50.0  50.0      .050       20.00
  271         270         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
  270         399         0          4      CHANNEL        70.0    2605.      .0074      3.0   3.0      .055        8.00        0
                                              OVERFLOW    700.0    2605.      .0074    100.0 100.0      .040       20.00
  399        1599         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1599        1947         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
 1947           0         0          3                       .0       1.      .0010       .0    .0      .001       10.00        0
OTOTAL NUMBER OF GUTTERS/PIPES, 610
1


 model sbc_1td
 50-year model



 ARRANGEMENT OF SUBCATCHMENTS AND GUTTERS/PIPES

       GUTTER     TRIBUTARY GUTTER/PIPE                                       TRIBUTARY SUBAREA                           D.A.(AC)

         1    2    5    0    0    0    0    0    0    0    0              1    0    0    0    0    0    0    0    0    0 64741.0

         2    3    4    0    0    0    0    0    0    0    0              2    0    0    0    0    0    0    0    0    0  2408.0

         3    0    0    0    0    0    0    0    0    0    0              3    0    0    0    0    0    0    0    0    0   929.0

         4    0    0    0    0    0    0    0    0    0    0              4    0    0    0    0    0    0    0    0    0   960.0

         5    7    6   13    0    0    0    0    0    0    0              5    0    0    0    0    0    0    0    0    0 61766.0

         6  397    0    0    0    0    0    0    0    0    0              6    0    0    0    0    0    0    0    0    0 59943.0

         7    9   10    0    0    0    0    0    0    0    0              7    0    0    0    0    0    0    0    0    0   986.0

         8   15   22    0    0    0    0    0    0    0    0              8    0    0    0    0    0    0    0    0    0 59647.0

         9    0    0    0    0    0    0    0    0    0    0              9    0    0    0    0    0    0    0    0    0   411.0

        10    0    0    0    0    0    0    0    0    0    0             10    0    0    0    0    0    0    0    0    0   202.0

        11    0    0    0    0    0    0    0    0    0    0             11    0    0    0    0    0    0    0    0    0   113.0

        12    0    0    0    0    0    0    0    0    0    0             12    0    0    0    0    0    0    0    0    0   159.0

        13   11   12    0    0    0    0    0    0    0    0             13    0    0    0    0    0    0    0    0    0   501.0

        14    0    0    0    0    0    0    0    0    0    0             14    0    0    0    0    0    0    0    0    0   132.0

        15   14   16    0    0    0    0    0    0    0    0             15    0    0    0    0    0    0    0    0    0 53636.0

        16   40   17    0    0    0    0    0    0    0    0             16    0    0    0    0    0    0    0    0    0 53468.0

        17   18   21    0    0    0    0    0    0    0    0             17    0    0    0    0    0    0    0    0    0  1706.0

        18   20    0    0    0    0    0    0    0    0    0             18    0    0    0    0    0    0    0    0    0  1171.0
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 20      0    0    0    0    0    0    0    0    0    0        19    0    0    0    0    0    0    0    0    0    606.0
 21      0    0    0    0    0    0    0    0    0    0        20    0    0    0    0    0    0    0    0    0    379.0
 22     23   24    0    0    0    0    0    0    0    0        21    0    0    0    0    0    0    0    0    0   4784.0
 23     37   34   31    0    0    0    0    0    0    0        22    0    0    0    0    0    0    0    0    0   2671.0
 24     25   26    0    0    0    0    0    0    0    0        23    0    0    0    0    0    0    0    0    0   1666.0
 25      0    0    0    0    0    0    0    0    0    0        24    0    0    0    0    0    0    0    0    0    363.0
 26     27   28    0    0    0    0    0    0    0    0        25    0    0    0    0    0    0    0    0    0   1199.0
 27      0    0    0    0    0    0    0    0    0    0        26    0    0    0    0    0    0    0    0    0    107.0
 28     29   30    0    0    0    0    0    0    0    0        27    0    0    0    0    0    0    0    0    0    998.0
 29      0    0    0    0    0    0    0    0    0    0        28    0    0    0    0    0    0    0    0    0    152.0
 30      0    0    0    0    0    0    0    0    0    0        29    0    0    0    0    0    0    0    0    0    546.0
 31     32   33    0    0    0    0    0    0    0    0        30    0    0    0    0    0    0    0    0    0    508.0
 32      0    0    0    0    0    0    0    0    0    0        31    0    0    0    0    0    0    0    0    0    144.0
 33      0    0    0    0    0    0    0    0    0    0        32    0    0    0    0    0    0    0    0    0    257.0
 34     35   36    0    0    0    0    0    0    0    0        33    0    0    0    0    0    0    0    0    0    844.0
 35      0    0    0    0    0    0    0    0    0    0        34    0    0    0    0    0    0    0    0    0    148.0
 36      0    0    0    0    0    0    0    0    0    0        35    0    0    0    0    0    0    0    0    0    251.0
 37     38   39    0    0    0    0    0    0    0    0        36    0    0    0    0    0    0    0    0    0   1124.0
 38      0    0    0    0    0    0    0    0    0    0        37    0    0    0    0    0    0    0    0    0    368.0
 39      0    0    0    0    0    0    0    0    0    0        38    0    0    0    0    0    0    0    0    0    290.0
 40     41   42    0    0    0    0    0    0    0    0        39    0    0    0    0    0    0    0    0    0  51645.0
 41      0    0    0    0    0    0    0    0    0    0        40    0    0    0    0    0    0    0    0    0    205.0
 42     46   62   68    0    0    0    0    0    0    0        41    0    0    0    0    0    0    0    0    0  31084.0
 44   1512 1501    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  80179.0
 46     59   60    0    0    0    0    0    0    0    0        42    0    0    0    0    0    0    0    0    0  47929.0
 48     50   49    0    0    0    0    0    0    0    0        69    0    0    0    0    0    0    0    0    0  72077.0
 49      0    0    0    0    0    0    0    0    0    0        72    0    0    0    0    0    0    0    0    0    220.0
 50     51   52   56    0    0    0    0    0    0    0        71    0    0    0    0    0    0    0    0    0  71466.0
 51      0    0    0    0    0    0    0    0    0    0        82    0    0    0    0    0    0    0    0    0    362.0
 52    244  245   53    0    0    0    0    0    0    0        73    0    0    0    0    0    0    0    0    0  69055.0
 53     54   55    0    0    0    0    0    0    0    0        75    0    0    0    0    0    0    0    0    0    536.0
 54      0    0    0    0    0    0    0    0    0    0        76    0    0    0    0    0    0    0    0    0    213.0
 55      0    0    0    0    0    0    0    0    0    0        77    0    0    0    0    0    0    0    0    0    297.0
 56     57   58    0    0    0    0    0    0    0    0        78   79    0    0    0    0    0    0    0    0   1842.0
 57      0    0    0    0    0    0    0    0    0    0        81    0    0    0    0    0    0    0    0    0    776.0
 58      0    0    0    0    0    0    0    0    0    0        80    0    0    0    0    0    0    0    0    0    220.0
 59     74   71    0    0    0    0    0    0    0    0        43    0    0    0    0    0    0    0    0    0  47507.0
 60      0    0    0    0    0    0    0    0    0    0        44    0    0    0    0    0    0    0    0    0    225.0
 61     63   64    0    0    0    0    0    0    0    0        45    0    0    0    0    0    0    0    0    0   1044.0
 62     61   65    0    0    0    0    0    0    0    0        46    0    0    0    0    0    0    0    0    0   2039.0
 63      0    0    0    0    0    0    0    0    0    0        47    0    0    0    0    0    0    0    0    0    234.0
 64      0    0    0    0    0    0    0    0    0    0        48    0    0    0    0    0    0    0    0    0    258.0
 65     66   67    0    0    0    0    0    0    0    0        49    0    0    0    0    0    0    0    0    0    956.0
 66      0    0    0    0    0    0    0    0    0    0        50    0    0    0    0    0    0    0    0    0    108.0
 67      0    0    0    0    0    0    0    0    0    0        51    0    0    0    0    0    0    0    0    0    636.0
 68     69   70    0    0    0    0    0    0    0    0        52    0    0    0    0    0    0    0    0    0    523.0
 69      0    0    0    0    0    0    0    0    0    0        53    0    0    0    0    0    0    0    0    0    197.0
 70      0    0    0    0    0    0    0    0    0    0        54    0    0    0    0    0    0    0    0    0    246.0
 71     72   73    0    0    0    0    0    0    0    0        55    0    0    0    0    0    0    0    0    0   1094.0
 72      0    0    0    0    0    0    0    0    0    0        56    0    0    0    0    0    0    0    0    0    197.0
 73      0    0    0    0    0    0    0    0    0    0        57    0    0    0    0    0    0    0    0    0    636.0
```

```
   74    77   76   94    0    0    0    0    0    0    0          58    0    0    0    0    0    0    0    0    0 46117.0
   75    79   78    0    0    0    0    0    0    0    0          61    0    0    0    0    0    0    0    0    0  3945.0
   76     0    0    0    0    0    0    0    0    0    0          63    0    0    0    0    0    0    0    0    0   379.0
   77    75   88    0    0    0    0    0    0    0    0          65    0    0    0    0    0    0    0    0    0  4793.0
   78     0    0    0    0    0    0    0    0    0    0          66    0    0    0    0    0    0    0    0    0   256.0
   79    80  121    0    0    0    0    0    0    0    0          70    0    0    0    0    0    0    0    0    0  3627.0
   80    82   81    0    0    0    0    0    0    0    0          83    0    0    0    0    0    0    0    0    0  2668.0
   81    87    0    0    0    0    0    0    0    0    0          84    0    0    0    0    0    0    0    0    0   958.0
   82    84   83    0    0    0    0    0    0    0    0          85    0    0    0    0    0    0    0    0    0   848.0
   83     0    0    0    0    0    0    0    0    0    0          86    0    0    0    0    0    0    0    0    0   197.0
   84    85   86    0    0    0    0    0    0    0    0          87    0    0    0    0    0    0    0    0    0   555.0
   85     0    0    0    0    0    0    0    0    0    0          88    0    0    0    0    0    0    0    0    0   118.0
   86     0    0    0    0    0    0    0    0    0    0          89    0    0    0    0    0    0    0    0    0   331.0
   87     0    0    0    0    0    0    0    0    0    0          90    0    0    0    0    0    0    0    0    0   655.0
   88    89   93    0    0    0    0    0    0    0    0          91    0    0    0    0    0    0    0    0    0 . 782.0
   89     0    0    0    0    0    0    0    0    0    0         228    0    0    0    0    0    0    0    0    0   319.0
   93     0    0    0    0    0    0    0    0    0    0         229    0    0    0    0    0    0    0    0    0   111.0
   94    95   97    0    0    0    0    0    0    0    0          92    0    0    0    0    0    0    0    0    0 40534.0
   95    96  116    0    0    0    0    0    0    0    0         230    0    0    0    0    0    0    0    0    0 34430.0
   96   129  122    0    0    0    0    0    0    0    0          93    0    0    0    0    0    0    0    0    0 33528.0
   97    99   98    0    0    0    0    0    0    0    0          94    0    0    0    0    0    0    0    0    0  5629.0
   98     0    0    0    0    0    0    0    0    0    0          95    0    0    0    0    0    0    0    0    0   309.0
   99   101  100    0    0    0    0    0    0    0    0          96    0    0    0    0    0    0    0    0    0  4848.0
  100     0    0    0    0    0    0    0    0    0    0          97    0    0    0    0    0    0    0    0    0   458.0
  101   102  107    0    0    0    0    0    0    0    0          98    0    0    0    0    0    0    0    0    0  4335.0
  102   106  103    0    0    0    0    0    0    0    0          99    0    0    0    0    0    0    0    0    0  2382.0
  103   104  105    0    0    0    0    0    0    0    0         100    0    0    0    0    0    0    0    0    0  1795.0
  104   119  117    0    0    0    0    0    0    0    0         101    0    0    0    0    0    0    0    0    0  1302.0
  105     0    0    0    0    0    0    0    0    0    0         102    0    0    0    0    0    0    0    0    0   343.0
  106     0    0    0    0    0    0    0    0    0    0         103    0    0    0    0    0    0    0    0    0   273.0
  107   108  109    0    0    0    0    0    0    0    0         104    0    0    0    0    0    0    0    0    0  1871.0
  108     0    0    0    0    0    0    0    0    0    0         105    0    0    0    0    0    0    0    0    0   202.0
  109   110  111    0    0    0    0    0    0    0    0         106    0    0    0    0    0    0    0    0    0  1563.0
  110   112  113    0    0    0    0    0    0    0    0         107    0    0    0    0    0    0    0    0    0  1148.0
  111     0    0    0    0    0    0    0    0    0    0         108    0    0    0    0    0    0    0    0    0   199.0
  112   114  115    0    0    0    0    0    0    0    0         109    0    0    0    0    0    0    0    0    0   540.0
  113     0    0    0    0    0    0    0    0    0    0         110    0    0    0    0    0    0    0    0    0   209.0
  114     0    0    0    0    0    0    0    0    0    0         111    0    0    0    0    0    0    0    0    0   230.0
  115     0    0    0    0    0    0    0    0    0    0         112    0    0    0    0    0    0    0    0    0   102.0
  116     0    0    0    0    0    0    0    0    0    0         113    0    0    0    0    0    0    0    0    0   702.0
  117     0    0    0    0    0    0    0    0    0    0         114    0    0    0    0    0    0    0    0    0   390.0
  118     0    0    0    0    0    0    0    0    0    0         115    0    0    0    0    0    0    0    0    0   453.0
  119   120  118    0    0    0    0    0    0    0    0         116    0    0    0    0    0    0    0    0    0   707.0
  120     0    0    0    0    0    0    0    0    0    0         117    0    0    0    0    0    0    0    0    0   220.0
  121     0    0    0    0    0    0    0    0    0    0          74    0    0    0    0    0    0    0    0    0   326.0
  122   124  123    0    0    0    0    0    0    0    0         118    0    0    0    0    0    0    0    0    0  2595.0
  123   127  128    0    0    0    0    0    0    0    0         119    0    0    0    0    0    0    0    0    0  1409.0
  124   125  126    0    0    0    0    0    0    0    0         120    0    0    0    0    0    0    0    0    0   705.0
  125     0    0    0    0    0    0    0    0    0    0         124    0    0    0    0    0    0    0    0    0   220.0
  126     0    0    0    0    0    0    0    0    0    0         125    0    0    0    0    0    0    0    0    0    88.0
  127     0    0    0    0    0    0    0    0    0    0         126    0    0    0    0    0    0    0    0    0   548.0
```

```
128      0    0    0    0    0    0    0    0    0    0        127    0    0    0    0    0    0    0    0    0   472.0
129    137  130    0    0    0    0    0    0    0    0        128    0    0    0    0    0    0    0    0    0 30354.0
130    133  131  132    0    0    0    0    0    0    0        129    0    0    0    0    0    0    0    0    0  2081.0
131      0    0    0    0    0    0    0    0    0    0        130    0    0    0    0    0    0    0    0    0   290.0
132      0    0    0    0    0    0    0    0    0    0        131    0    0    0    0    0    0    0    0    0   213.0
133    134    0    0    0    0    0    0    0    0    0        132    0    0    0    0    0    0    0    0    0  1468.0
134    135  136    0    0    0    0    0    0    0    0        133    0    0    0    0    0    0    0    0    0   972.0
135      0    0    0    0    0    0    0    0    0    0        134    0    0    0    0    0    0    0    0    0   160.0
136      0    0    0    0    0    0    0    0    0    0        135    0    0    0    0    0    0    0    0    0   282.0
137    138  139    0    0    0    0    0    0    0    0        136    0    0    0    0    0    0    0    0    0 28122.0
138      0    0    0    0    0    0    0    0    0    0        137    0    0    0    0    0    0    0    0    0   383.0
139    149  140    0    0    0    0    0    0    0    0        138    0    0    0    0    0    0    0    0    0 27597.0
140    142  141    0    0    0    0    0    0    0    0        139    0    0    0    0    0    0    0    0    0  2013.0
141      0    0    0    0    0    0    0    0    0    0        140    0    0    0    0    0    0    0    0    0   132.0
142    146  143    0    0    0    0    0    0    0    0        141    0    0    0    0    0    0    0    0    0  1697.0
143    144  145    0    0    0    0    0    0    0    0        142    0    0    0    0    0    0    0    0    0   540.0
144      0    0    0    0    0    0    0    0    0    0        143    0    0    0    0    0    0    0    0    0   274.0
145      0    0    0    0    0    0    0    0    0    0        144    0    0    0    0    0    0    0    0    0    79.0
146    147  148    0    0    0    0    0    0    0    0        145    0    0    0    0    0    0    0    0    0  1054.0
147      0    0    0    0    0    0    0    0    0    0        146    0    0    0    0    0    0    0    0    0   283.0
148      0    0    0    0    0    0    0    0    0    0        147    0    0    0    0    0    0    0    0    0   453.0
149    152  150  151    0    0    0    0    0    0    0        148    0    0    0    0    0    0    0    0    0 25514.0
150      0    0    0    0    0    0    0    0    0    0        149    0    0    0    0    0    0    0    0    0    58.0
151      0    0    0    0    0    0    0    0    0    0        150    0    0    0    0    0    0    0    0    0   189.0
152    153  154    0    0    0    0    0    0    0    0        151    0    0    0    0    0    0    0    0    0 25053.0
153      0    0    0    0    0    0    0    0    0    0        152    0    0    0    0    0    0    0    0    0   249.0
154    156  155    0    0    0    0    0    0    0    0        153    0    0    0    0    0    0    0    0    0 24303.0
155      0    0    0    0    0    0    0    0    0    0        154    0    0    0    0    0    0    0    0    0   161.0
156    157  158    0    0    0    0    0    0    0    0        155    0    0    0    0    0    0    0    0    0 23893.0
157    172  163  170  171    0    0    0    0    0    0        156    0    0    0    0    0    0    0    0    0 21505.0
158    160  159    0    0    0    0    0    0    0    0        157    0    0    0    0    0    0    0    0    0  1865.0
159      0    0    0    0    0    0    0    0    0    0        158    0    0    0    0    0    0    0    0    0   476.0
160    161  162    0    0    0    0    0    0    0    0        159    0    0    0    0    0    0    0    0    0  1045.0
161      0    0    0    0    0    0    0    0    0    0        160    0    0    0    0    0    0    0    0    0   341.0
162      0    0    0    0    0    0    0    0    0    0        161    0    0    0    0    0    0    0    0    0   362.0
163    166  164    0    0    0    0    0    0    0    0        162    0    0    0    0    0    0    0    0    0  1286.0
164      0    0    0    0    0    0    0    0    0    0        163    0    0    0    0    0    0    0    0    0    76.0
165    168  169    0    0    0    0    0    0    0    0        164    0    0    0    0    0    0    0    0    0   784.0
166    165  167    0    0    0    0    0    0    0    0        165    0    0    0    0    0    0    0    0    0  1098.0
167      0    0    0    0    0    0    0    0    0    0        166    0    0    0    0    0    0    0    0    0   215.0
168      0    0    0    0    0    0    0    0    0    0        167    0    0    0    0    0    0    0    0    0   259.0
169      0    0    0    0    0    0    0    0    0    0        168    0    0    0    0    0    0    0    0    0   175.0
170      0    0    0    0    0    0    0    0    0    0        169    0    0    0    0    0    0    0    0    0   332.0
171      0    0    0    0    0    0    0    0    0    0        170    0    0    0    0    0    0    0    0    0   139.0
172    187  173    0    0    0    0    0    0    0    0        171    0    0    0    0    0    0    0    0    0 19645.0
173    174  175    0    0    0    0    0    0    0    0        172    0    0    0    0    0    0    0    0    0  5003.0
174      0    0    0    0    0    0    0    0    0    0        173    0    0    0    0    0    0    0    0    0   188.0
175    177  176    0    0    0    0    0    0    0    0        174    0    0    0    0    0    0    0    0    0  4585.0
176    180  179    0    0    0    0    0    0    0    0        175    0    0    0    0    0    0    0    0    0  3882.0
177    178    0    0    0    0    0    0    0    0    0        176    0    0    0    0    0    0    0    0    0   625.0
178      0    0    0    0    0    0    0    0    0    0        177    0    0    0    0    0    0    0    0    0   392.0
```

```
  179       0    0    0    0    0    0    0    0    0    0        178    0    0    0    0    0    0    0    0    0    211.0
  180     181  182    0    0    0    0    0    0    0    0        179    0    0    0    0    0    0    0    0    0   2955.0
  181       0    0    0    0    0    0    0    0    0    0        180    0    0    0    0    0    0    0    0    0    438.0
  182     183  184    0    0    0    0    0    0    0    0        181    0    0    0    0    0    0    0    0    0   2016.0
  183       0    0    0    0    0    0    0    0    0    0        182    0    0    0    0    0    0    0    0    0    599.0
  184     186  185    0    0    0    0    0    0    0    0        183    0    0    0    0    0    0    0    0    0    910.0
  185       0    0    0    0    0    0    0    0    0    0        184    0    0    0    0    0    0    0    0    0    232.0
  186       0    0    0    0    0    0    0    0    0    0        185    0    0    0    0    0    0    0    0    0    461.0
  187     192  193    0    0    0    0    0    0    0    0        186    0    0    0    0    0    0    0    0    0 14569.0
  192     194  205    0    0    0    0    0    0    0    0        187    0    0    0    0    0    0    0    0    0 13278.0
  193       0    0    0    0    0    0    0    0    0    0        188    0    0    0    0    0    0    0    0    0    273.0
  194     198  199  196  195    0    0    0    0    0    0        189    0    0    0    0    0    0    0    0    0   5663.0
  195       0    0    0    0    0    0    0    0    0    0        190    0    0    0    0    0    0    0    0    0    251.0
  196       0    0    0    0    0    0    0    0    0    0        195    0    0    0    0    0    0    0    0    0    387.0
  198     201  200  202    0    0    0    0    0    0    0        196    0    0    0    0    0    0    0    0    0   3544.0
  199       0    0    0    0    0    0    0    0    0    0        197    0    0    0    0    0    0    0    0    0    634.0
  200       0    0    0    0    0    0    0    0    0    0        198    0    0    0    0    0    0    0    0    0    542.0
  201     204  203    0    0    0    0    0    0    0    0        199    0    0    0    0    0    0    0    0    0   1955.0
  202       0    0    0    0    0    0    0    0    0    0        200    0    0    0    0    0    0    0    0    0    250.0
  203       0    0    0    0    0    0    0    0    0    0        203    0    0    0    0    0    0    0    0    0    258.0
  204       0    0    0    0    0    0    0    0    0    0        204    0    0    0    0    0    0    0    0    0    854.0
  205     207  206    0    0    0    0    0    0    0    0        205    0    0    0    0    0    0    0    0    0   7500.0
  206       0    0    0    0    0    0    0    0    0    0        206    0    0    0    0    0    0    0    0    0    250.0
  207     211  208    0    0    0    0    0    0    0    0        207    0    0    0    0    0    0    0    0    0   6855.0
  208       0    0    0    0    0    0    0    0    0    0        208    0    0    0    0    0    0    0    0    0    275.0
  211     212  215    0    0    0    0    0    0    0    0        209    0    0    0    0    0    0    0    0    0   5808.0
  212     214  213    0    0    0    0    0    0    0    0        210    0    0    0    0    0    0    0    0    0   1581.0
  213       0    0    0    0    0    0    0    0    0    0        211    0    0    0    0    0    0    0    0    0    511.0
  214       0    0    0    0    0    0    0    0    0    0        212    0    0    0    0    0    0    0    0    0    482.0
  215     219  216  217    0    0    0    0    0    0    0        213    0    0    0    0    0    0    0    0    0   3943.0
  216       0    0    0    0    0    0    0    0    0    0        214    0    0    0    0    0    0    0    0    0    505.0
  217       0    0    0    0    0    0    0    0    0    0        215    0    0    0    0    0    0    0    0    0    245.0
  218     222  221    0    0    0    0    0    0    0    0        219    0    0    0    0    0    0    0    0    0   1711.0
  219     220  218    0    0    0    0    0    0    0    0        220    0    0    0    0    0    0    0    0    0   2654.0
  220       0    0    0    0    0    0    0    0    0    0        221    0    0    0    0    0    0    0    0    0    506.0
  221       0    0    0    0    0    0    0    0    0    0        222    0    0    0    0    0    0    0    0    0    250.0
  222     224  223    0    0    0    0    0    0    0    0        223    0    0    0    0    0    0    0    0    0   1417.0
  223       0    0    0    0    0    0    0    0    0    0        224    0    0    0    0    0    0    0    0    0    309.0
  224     226  225    0    0    0    0    0    0    0    0        225    0    0    0    0    0    0    0    0    0    926.0
  225       0    0    0    0    0    0    0    0    0    0        226    0    0    0    0    0    0    0    0    0    152.0
  226       0    0    0    0    0    0    0    0    0    0        227    0    0    0    0    0    0    0    0    0    286.0
  231     252    0    0    0    0    0    0    0    0    0        231    0    0    0    0    0    0    0    0    0 86054.0
  232     234  233    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0 85664.0
  233     251    0    0    0    0    0    0    0    0    0        233    0    0    0    0    0    0    0    0    0 85477.0
  234     239    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    187.0
  235       0    0    0    0    0    0    0    0    0    0        235    0    0    0    0    0    0    0    0    0    187.0
  236     232    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0 85664.0
  237     238    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0 85196.0
  238    1927  240    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0 85196.0
  239     235    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    187.0
  240     241    0    0    0    0    0    0    0    0    0        240    0    0    0    0    0    0    0    0    0 84397.0
```

```
 241      242    0    0    0    0    0    0    0    0    0       241    0    0    0    0    0    0    0    0    0 84351.0
 242      377  289  243    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 84008.0
 243     1427    0    0    0    0    0    0    0    0    0       243    0    0    0    0    0    0    0    0    0 80261.0
 244        0    0    0    0    0    0    0    0    0    0       253    0    0    0    0    0    0    0    0    0   848.0
 245        1  246    0    0    0    0    0    0    0    0       254    0    0    0    0    0    0    0    0    0 67230.0
 246      247  250    0    0    0    0    0    0    0    0       255    0    0    0    0    0    0    0    0    0  2389.0
 247        0    0    0    0    0    0    0    0    0    0       256    0    0    0    0    0    0    0    0    0   808.0
 248        0    0    0    0    0    0    0    0    0    0       257    0    0    0    0    0    0    0    0    0   645.0
 249        0    0    0    0    0    0    0    0    0    0       258    0    0    0    0    0    0    0    0    0   377.0
 250      248  249    0    0    0    0    0    0    0    0       259    0    0    0    0    0    0    0    0    0  1131.0
 251      237    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 85196.0
 252      236    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 85664.0
 261       44    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 80179.0
 262     1935    0    0    0    0    0    0    0    0    0       262    0    0    0    0    0    0    0    0    0  2758.0
 263      262    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2758.0
 264     1905    0    0    0    0    0    0    0    0    0       264    0    0    0    0    0    0    0    0    0  2784.0
 265      264    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2784.0
 266        0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
 267      293 1267    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  3624.0
 268      267    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  3624.0
 269      265    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2784.0
 270      271    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 86842.0
 271      319  231    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 86842.0
 280      294    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  3624.0
 289     1924    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  3653.0
 290     1290    0    0    0    0    0    0    0    0    0       290    0    0    0    0    0    0    0    0    0  3653.0
 291     1291    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  3624.0
 292     1923    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
 293     1293    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  3624.0
 294     1294  304 1920    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  3624.0
 295     1295    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
 296     1296    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
 297      298    0    0    0    0    0    0    0    0    0       297    0    0    0    0    0    0    0    0    0   587.0
 298      303    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   249.0
 299        0    0    0    0    0    0    0    0    0    0       299    0    0    0    0    0    0    0    0    0    72.0
 300      301    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   177.0
 301        0    0    0    0    0    0    0    0    0    0       301    0    0    0    0    0    0    0    0    0   177.0
 303      299 1922    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   249.0
 304        0    0    0    0    0    0    0    0    0    0       304    0    0    0    0    0    0    0    0    0   150.0
 308      396    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     7.0
 310     1409 1310    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
 311      371  312    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   247.0
 312     1940    0    0    0    0    0    0    0    0    0       312    0    0    0    0    0    0    0    0    0   100.0
 313     1939    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     7.0
 314      308    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     7.0
 315      310    0    0    0    0    0    0    0    0    0       315    0    0    0    0    0    0    0    0    0    28.0
 316        0    0    0    0    0    0    0    0    0    0       316    0    0    0    0    0    0    0    0    0    43.0
 317      315  316    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    71.0
 318      338    0    0    0    0    0    0    0    0    0       318    0    0    0    0    0    0    0    0    0   230.0
 319     1946    0    0    0    0    0    0    0    0    0       319    0    0    0    0    0    0    0    0    0   788.0
 320     1320    0    0    0    0    0    0    0    0    0       320    0    0    0    0    0    0    0    0    0   454.0
```

```
 321   1321    0    0    0    0    0    0    0    0    0      321    0    0    0    0    0    0    0    0    0    34.0
 322   1909    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   454.0
 323   1323    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     9.0
 324    325    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   569.0
 325   1325  326    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   569.0
 326    327  317    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   569.0
 327   1311    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   498.0
 328    337 1329  329    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   498.0
 329    330    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   417.0
 330   1306 1303    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   417.0
 331   1331 1407    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 332    333  334    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    10.0
 333   1333    0    0    0    0    0    0    0    0    0      333    0    0    0    0    0    0    0    0    0     5.0
 334   1334    0    0    0    0    0    0    0    0    0      334    0    0    0    0    0    0    0    0    0     5.0
 335   1335    0    0    0    0    0    0    0    0    0      335    0    0    0    0    0    0    0    0    0   417.0
 336   1336    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 337    331    0    0    0    0    0    0    0    0    0      337    0    0    0    0    0    0    0    0    0    50.0
 338      0    0    0    0    0    0    0    0    0    0      338    0    0    0    0    0    0    0    0    0    73.0
 339   1822    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 340   1340    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 341   1341    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 342   1342    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   381.0
 343   1343    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   381.0
 344    366    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    81.0
 345    346    0    0    0    0    0    0    0    0    0      345    0    0    0    0    0    0    0    0    0   149.0
 346      0    0    0    0    0    0    0    0    0    0      346    0    0    0    0    0    0    0    0    0    71.0
 347   1915    0    0    0    0    0    0    0    0    0      347    0    0    0    0    0    0    0    0    0   212.0
 348   1348    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 349      0    0    0    0    0    0    0    0    0    0      349    0    0    0    0    0    0    0    0    0    13.0
 350      0    0    0    0    0    0    0    0    0    0      350    0    0    0    0    0    0    0    0    0    51.0
 351   1814    0    0    0    0    0    0    0    0    0      351    0    0    0    0    0    0    0    0    0   100.0
 352   1919    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    41.0
 353      0    0    0    0    0    0    0    0    0    0      353    0    0    0    0    0    0    0    0    0    41.0
 354   1817    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     6.0
 355      0    0    0    0    0    0    0    0    0    0      355    0    0    0    0    0    0    0    0    0     7.0
 356    359    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   381.0
 357   1357    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   259.0
 358    311    0    0    0    0    0    0    0    0    0      358    0    0    0    0    0    0    0    0    0   259.0
 359    345  347  349  355    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   381.0
 360   1360  292    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      .0
 361      0    0    0    0    0    0    0    0    0    0      361    0    0    0    0    0    0    0    0    0    30.0
 362   1362  363    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     7.0
 363      0    0    0    0    0    0    0    0    0    0      363    0    0    0    0    0    0    0    0    0     7.0
 366   1366    0    0    0    0    0    0    0    0    0      366    0    0    0    0    0    0    0    0    0    81.0
 367   1367    0    0    0    0    0    0    0    0    0      367    0    0    0    0    0    0    0    0    0    23.0
 368      0    0    0    0    0    0    0    0    0    0      368    0    0    0    0    0    0    0    0    0    99.0
 369      0    0    0    0    0    0    0    0    0    0      369    0    0    0    0    0    0    0    0    0    17.0
 370      0    0    0    0    0    0    0    0    0    0      370    0    0    0    0    0    0    0    0    0    41.0
 371    372    0    0    0    0    0    0    0    0    0      371    0    0    0    0    0    0    0    0    0   147.0
 372    374  373  367    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    64.0
 373      0    0    0    0    0    0    0    0    0    0      373    0    0    0    0    0    0    0    0    0    38.0
```

```
  374    1374    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       3.0
  375     376    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       3.0
  376     266    0    0    0    0    0    0    0    0    0      376    0    0    0    0    0    0    0    0    0       3.0
  377    1925    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      94.0
  378    1378    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      94.0
  379     380    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      94.0
  380    1821    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      94.0
  381     382    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      77.0
  382    1381    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      77.0
  383    1820    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      77.0
  384       0    0    0    0    0    0    0    0    0    0      384    0    0    0    0    0    0    0    0    0      77.0
  385       0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
  386    1386    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
  387    1387    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     259.0
  388       0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
  389       0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
  390    1912    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     799.0
  391     392    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     569.0
  392    1941 1392    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     569.0
  393     358    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     259.0
  394     395    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
  395     386    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
  396    1396    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       7.0
  397       8    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   59647.0
  398     362    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       7.0
  399     270    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   66842.0
 1238     390    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     799.0
 1262       0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
 1267       0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
 1289       0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
 1290     291    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    3624.0
 1291     268    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    3624.0
 1293     280    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    3624.0
 1294     269    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    2784.0
 1295       0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
 1296     295    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
 1301     335    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     417.0
 1302    1301    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     417.0
 1303    1302    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     417.0
 1304       0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
 1305    1307 1304    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      10.0
 1306       0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
 1307    1308    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      10.0
 1308     332    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      10.0
 1309     328    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     498.0
 1310     336    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
 1311    1309    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     498.0
 1312       0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
 1313     339    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0        .0
 1320    1908 1907 1361    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     293.0
 1321     323    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       9.0
```

```
   1323    1402    0    0    0    0    0    0    0    0    0       1323    0    0    0    0    0    0    0    0    0      9.0
   1325       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1329       0    0    0    0    0    0    0    0    0    0        336    0    0    0    0    0    0    0    0    0     31.0
   1330     368 1312    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     99.0
   1331       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1332    1330    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     99.0
   1333     340    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1334     341    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1335     342    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    381.0
   1336       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1337     321    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     34.0
   1338    1337    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     34.0
   1339       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1340       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1341       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1342     343    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    381.0
   1343     356    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    381.0
   1348       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1357     393    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    259.0
   1360       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1361    1338    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     34.0
   1362       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1363       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1364     361 1363    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     30.0
   1365    1370 1364    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    129.0
   1366       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1367       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1368    1332    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     99.0
   1369    1368    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     99.0
   1370    1369    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     99.0
   1371       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1372    1371 1377    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1373    1945    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    170.0
   1374     375    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0      3.0
   1375    1373    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    170.0
   1376    1375    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    170.0
   1377       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1378    1406 1404    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     94.0
   1381    1382 1405    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     77.0
   1382     296    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1383       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1386    1937  385    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1387    1401    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    259.0
   1392     324    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    569.0
   1393       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1396     398    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0      7.0
   1401     357    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    259.0
   1402       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1403       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1404       0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
   1405     383    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     77.0
```

```
1406   379    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     94.0
1407     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1408   344    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     81.0
1409     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1410     0    0    0    0    0    0    0    0    0    0      1410    0    0    0    0    0    0    0    0    0    195.0
1411  1410 1424    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  77101.0
1412  1411    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  77101.0
1413  1412    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  77101.0
1414     0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1415     0    0    0    0    0    0    0    0    0    0      1415    0    0    0    0    0    0    0    0    0    307.0
1416  1415 1553    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1203.0
1420     0    0    0    0    0    0    0    0    0    0      1420    0    0    0    0    0    0    0    0    0     59.0
1421  1420 1426 1441    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76906.0
1423  1421    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76906.0
1424  1423    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76906.0
1425     0    0    0    0    0    0    0    0    0    0      1425    0    0    0    0    0    0    0    0    0     68.0
1426  1438 1425    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    382.0
1427   261    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  80179.0
1428  1528    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1429  1428 1416    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1203.0
1430     0    0    0    0    0    0    0    0    0    0      1430    0    0    0    0    0    0    0    0    0     82.0
1431  1430    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     82.0
1435     0    0    0    0    0    0    0    0    0    0      1435    0    0    0    0    0    0    0    0    0    232.0
1436  1435    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    232.0
1438  1436 1431    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    314.0
1440     0    0    0    0    0    0    0    0    0    0      1440    0    0    0    0    0    0    0    0    0     66.0
1441  1453 1440    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76465.0
1442  1514    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2719.0
1445     0    0    0    0    0    0    0    0    0    0      1445    0    0    0    0    0    0    0    0    0    164.0
1446  1445    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    164.0
1450     0    0    0    0    0    0    0    0    0    0      1450    0    0    0    0    0    0    0    0    0    198.0
1451  1603 1450    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76235.0
1453  1446 1451    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76399.0
1455     0    0    0    0    0    0    0    0    0    0      1455    0    0    0    0    0    0    0    0    0    542.0
1456  1455 1482    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1274.0
1457  1456    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1274.0
1460     0    0    0    0    0    0    0    0    0    0      1460    0    0    0    0    0    0    0    0    0    286.0
1461  1460    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    286.0
1465     0    0    0    0    0    0    0    0    0    0      1465    0    0    0    0    0    0    0    0    0     93.0
1467  1933 1932    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2351.0
1468  1467    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2351.0
1480  1938    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    732.0
1481  1480    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    732.0
1482  1481    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    732.0
1490     0    0    0    0    0    0    0    0    0    0      1490    0    0    0    0    0    0    0    0    0    698.0
1491  1490 1457    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1972.0
1500     0    0    0    0    0    0    0    0    0    0      1500    0    0    0    0    0    0    0    0    0    465.0
1501  1500    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    465.0
1505     0    0    0    0    0    0    0    0    0    0      1505    0    0    0    0    0    0    0    0    0    262.0
1506  1505 1800    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  79714.0
1507  1506 1508    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  79714.0
```

```
1508      0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
1509   1413    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  77101.0
1510      0    0    0    0    0    0    0    0    0    0     1510    0    0    0    0    0    0    0    0    0     76.0
1511   1522 1510    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2719.0
1512   1507    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  79714.0
1513   1511    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2719.0
1514   1513    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2719.0
1515      0    0    0    0    0    0    0    0    0    0     1515    0    0    0    0    0    0    0    0    0      8.0
1517   1716 1515    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    123.0
1520      0    0    0    0    0    0    0    0    0    0     1520    0    0    0    0    0    0    0    0    0     99.0
1521   1520 1533    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2175.0
1522   1517 1548    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2643.0
1525      0    0    0    0    0    0    0    0    0    0     1525    0    0    0    0    0    0    0    0    0     53.0
1526   1525 1429    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   1256.0
1528      0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
1530      0    0    0    0    0    0    0    0    0    0     1530    0    0    0    0    0    0    0    0    0    345.0
1531   1530 1546    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    820.0
1532   1526 1531    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2076.0
1533   1537 1534    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2076.0
1534   1414    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
1537   1532    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2076.0
1541      0    0    0    0    0    0    0    0    0    0     1540    0    0    0    0    0    0    0    0    0    345.0
1542   1541    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    345.0
1544   1542 1521    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2520.0
1545      0    0    0    0    0    0    0    0    0    0     1545    0    0    0    0    0    0    0    0    0    253.0
1546   1545 1576    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    475.0
1548   1544    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2520.0
1550      0    0    0    0    0    0    0    0    0    0     1550    0    0    0    0    0    0    0    0    0    424.0
1551   1550 1563    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    642.0
1553   1551 1557    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    896.0
1556      0    0    0    0    0    0    0    0    0    0     1555    0    0    0    0    0    0    0    0    0     83.0
1557   1571 1556    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    254.0
1560      0    0    0    0    0    0    0    0    0    0     1560    0    0    0    0    0    0    0    0    0    123.0
1561   1560    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    123.0
1563   1561 1566    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    218.0
1565      0    0    0    0    0    0    0    0    0    0     1565    0    0    0    0    0    0    0    0    0     95.0
1566   1565    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     95.0
1570      0    0    0    0    0    0    0    0    0    0     1570    0    0    0    0    0    0    0    0    0    171.0
1571   1570    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    171.0
1575      0    0    0    0    0    0    0    0    0    0     1575    0    0    0    0    0    0    0    0    0    222.0
1576   1575    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    222.0
1599   1403 1305 1372  399    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  86852.0
1600      0    0    0    0    0    0    0    0    0    0     1600    0    0    0    0    0    0    0    0    0     25.0
1601   1928 1600    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  73681.0
1603   1601 1929    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  76037.0
1605      0    0    0    0    0    0    0    0    0    0     1605    0    0    0    0    0    0    0    0    0     81.0
1606   1605 1666    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    471.0
1610      0    0    0    0    0    0    0    0    0    0     1610    0    0    0    0    0    0    0    0    0    109.0
1611   1628 1610    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  73185.0
1615      0    0    0    0    0    0    0    0    0    0     1615    0    0    0    0    0    0    0    0    0    228.0
1616   1615    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    228.0
```

```
1620     0    0    0    0    0    0    0    0    0    0        1620    0    0    0    0    0    0    0    0    0     324.0
1621  1653 1620    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0    1816.0
1623  1616 1621    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0    2044.0
1624  1623 1705    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0    2111.0
1625     0    0    0    0    0    0    0    0    0    0        1625    0    0    0    0    0    0    0    0    0     197.0
1626    48 1625 1636    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0   72591.0
1628  1631 1626    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0   73076.0
1630     0    0    0    0    0    0    0    0    0    0        1630    0    0    0    0    0    0    0    0    0     159.0
1631  1643 1630    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     485.0
1635     0    0    0    0    0    0    0    0    0    0        1635    0    0    0    0    0    0    0    0    0     317.0
1636  1635    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     317.0
1640     0    0    0    0    0    0    0    0    0    0        1640    0    0    0    0    0    0    0    0    0     200.0
1641  1640    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     200.0
1643  1646 1641    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     326.0
1645     0    0    0    0    0    0    0    0    0    0        1645    0    0    0    0    0    0    0    0    0     126.0
1646  1645    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     126.0
1650     0    0    0    0    0    0    0    0    0    0        1650    0    0    0    0    0    0    0    0    0     382.0
1651  1661 1650    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     934.0
1653  1651 1656    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0    1492.0
1655     0    0    0    0    0    0    0    0    0    0        1655    0    0    0    0    0    0    0    0    0     558.0
1656  1655    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     558.0
1660     0    0    0    0    0    0    0    0    0    0        1660    0    0    0    0    0    0    0    0    0     552.0
1661  1660    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     552.0
1665     0    0    0    0    0    0    0    0    0    0        1665    0    0    0    0    0    0    0    0    0     390.0
1666  1665    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     390.0
1705     0    0    0    0    0    0    0    0    0    0        1705    0    0    0    0    0    0    0    0    0      67.0
1710     0    0    0    0    0    0    0    0    0    0        1710    0    0    0    0    0    0    0    0    0     245.0
1711  1710    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     245.0
1712  1711 1624    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0    2356.0
1715     0    0    0    0    0    0    0    0    0    0        1715    0    0    0    0    0    0    0    0    0     115.0
1716  1715    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     115.0
1800  1509 1468    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0   79452.0
1812   352    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0      41.0
1813  1812    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0      41.0
1814  1813    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0      41.0
1815     0    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0        .0
1816  1815    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0        .0
1817  1818 1816    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0       6.0
1818     0    0    0    0    0    0    0    0    0    0         354    0    0    0    0    0    0    0    0    0       6.0
1820   384 1383    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0      77.0
1821   369 1926    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0      94.0
1822  1339  394    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0        .0
1905   263    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0    2758.0
1906   389    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0        .0
1907   388    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0        .0
1908   387    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     259.0
1909  1906  320    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     454.0
1910   313    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0       7.0
1911   391  318    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     799.0
1912  1911    0    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     799.0
1913   351  354    0    0    0    0    0    0    0    0           0    0    0    0    0    0    0    0    0    0     106.0
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      1914      1913    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   106.0
      1915       350 1914    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   157.0
      1916      1262    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0      :0
      1917         0    0    0    0    0    0    0    0    0            305    0    0    0    0    0    0    0    0    0   103.0
      1919      1934  353    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    41.0
      1920      1921    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   690.0
      1921       297 1917    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   690.0
      1922       300    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   177.0
      1923         0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0      .0
      1924       290 1289    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0  3653.0
      1925       378    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    94.0
      1926       381    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    77.0
      1927      1238    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   799.0
      1928      1611 1606    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0 73656.0
      1929      1712    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0  2356.0
      1931      1491 1461    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0  2258.0
      1932      1465    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    93.0
      1933      1931    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0  2258.0
      1934       360    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0      .0
      1935      1442 1916    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0  2719.0
      1937       348    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0      .0
      1938         0    0    0    0    0    0    0    0    0           1480    0    0    0    0    0    0    0    0    0   732.0
      1939      1313  314    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0     7.0
      1940      1910 1408 1942    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0    88.0
      1941      1393    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0      .0
      1942         0    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0      .0
      1943       322    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   454.0
      1944      1365  370    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   170.0
      1945      1944    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   170.0
      1946      1376 1943    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0   624.0
      1947      1599    0    0    0    0    0    0    0    0              0    0    0    0    0    0    0    0    0    0 86852.0
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  359 TO GUTTER  266 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  428 TO GUTTER  385 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  541 TO GUTTER  388 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  565 TO GUTTER  389 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
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*** PEAK FLOWS, STAGES AND STORAGES OF GUTTERS AND DETENTION DAMS ***

  CONVEYANCE     PEAK      STAGE      STORAGE      TIME
    ELEMENT     (CFS)       (FT)      (AC-FT)    (HR/MIN)

       1     3342.     5.8                12  45.        104       332.       2.3                   8  20.
       2     1556.     5.0                 8  40.        105        67.       1.1                   8  10.
       3      622.     1.7                 8  30.        106        41.        .9                   8  20.
       4      617.     1.5                 8  30.        107       267.       2.0                   8  35.
       5     3190.     5.7                12  45.        108        38.        .7                   8  30.
       6     3140.     5.0                12  45.        109       215.       1.6                   8  30.
       7      443.     3.2                 8  35.        110       153.       1.4                   8  25.
       8     7265.     (DIRECT FLOW)       9  25.        111        40.        .6                   8  30.
       9      223.     2.1                 8  30.        112        72.       1.0                   8  25.
      10      112.      .7                 8  20.        113        35.        .7                   8  25.
      11      123.      .8                 8  10.        114        16.        .5                   8  10.
      12       97.      .7                 8  20.        115        23.        .5                   8  25.
      13      332.     1.3                 8  20.        116        60.       1.1                   8  25.
      14      139.      .8                 8  10.        117       112.       1.6                   8  15.
      15     5697.     (DIRECT FLOW)       9  45.        118        60.       1.0                   8  30.
      16     5666.     (DIRECT FLOW)       9  45.        119       129.       1.9                   8  20.
      17      631.     2.1                 8  30.        120        67.       1.1                   8  10.
      18      405.     2.3                 8  30.        121       123.       1.4                   8  35.
      20       96.     1.0                 8  15.        122       359.       1.7                   8  45.
      21      112.     1.1                 8  35.        123       205.       1.3                   8  35.
      22     1417.     3.8                 8  45.        124       108.       1.1                   8  25.
      23      649.     3.3                 8  50.        125        24.        .5                   8  20.
      24      554.     3.0                 8  35.        126        15.        .4                   8  30.
      25      152.     1.2                 8  30.        127        78.        .8                   8  25.
      26      370.     2.5                 8  30.        128        70.        .7                   8  30.
      27       32.      .4                 8  25.        129      3065.       5.5                   9  55.
      28      285.     1.4                 8  30.        130       270.       1.4                   8  35.
      29       70.      .9                 8  25.        131        68.        .7                   8  10.
      30      160.     1.1                 8  35.        132        36.        .7                   8  25.
      31      153.     1.3                 8  35.        133       161.       1.3                   8  40.
      32       28.      .5                 8  30.        134       112.       1.1                   8  30.
      33      116.     1.1                 8  30.        135        11.        .4                   8  10.
      34      219.     1.7                 8  45.        136        21.        .5                   8  10.
      35       76.      .7                 8  30.        137      2921.       4.3                   9  50.
      36       97.      .8                 8  40.        138       106.       1.1                   8  40.
      37      203.     1.7                 8  45.        139      2832.       4.2                   9  45.
      38       48.      .5                 8  20.        140       275.       1.6                   8  40.
      39      133.     1.0                 8  35.        141        67.       1.0                   8  30.
      40     5412.     6.9                10   5.        142       190.       1.5                   8  35.
      41       96.      .7                 8  25.        143        71.        .9                   8  30.
      42     5352.     6.4                10   5.        144        30.        .6                   8  10.
      44     6357.     (DIRECT FLOW)      10  40.        145        11.        .5                   8  25.
      46     4977.     6.9                10   5.        146       104.       1.0                   8  35.
      48     6168.     8.3                 9  10.        147        35.        .5                   8  30.
      49      293.     1.4                 8  10.        148        47.        .7                   8  15.
      50     6142.     5.7                 9   0.        149      2673.       3.9                   9  45.
      51      580.     2.8                 8  15.        150        41.        .7                   8  20.
      52     5431.     6.6                 8  55.        151        92.       1.1                   8  30.
      53      149.     1.7                 8  10.        152      2603.       4.1                   9  35.
      54       50.      .9                 8   5.        153        29.        .4                   8  30.
      55       57.     1.0                 8   5.        154      2648.       4.3                   9  20.
      56      710.     2.2                 8  25.        155        42.        .4                   8  30.
      57      323.     1.2                 8  25.        156      2602.       4.3                   9  15.
      58       45.      .8                 8   5.        157      2462.       4.4                   9   5.
      59     4921.     6.7                10   5.        158       165.       1.0                   8  30.
      60       93.      .9                 8  30.        159        29.        .5                   8  10.
      61      235.     1.8                 8  45.        160       101.        .9                   8  20.
      62      496.     1.8                 8  45.        161        40.        .7                   8  25.
      63       32.      .7                 8  35.        162        25.        .5                   8  10.
      64       34.     1.0                 8  25.        163       150.        .9                   8  35.
      65      243.     2.6                 8  45.        164        20.        .3                   8  30.
      66       20.      .4                 8  25.        165        75.        .9                   8  25.
      67      212.     1.5                 8  35.        166       114.        .9                   8  30.
      68      294.     1.6                 8  30.        167        32.        .6                   8  30.
      69      100.      .9                 8  25.        168        19.        .5                   8  10.
      70      152.     1.1                 8  30.        169        13.        .4                   8  10.
      71      269.     1.8                 8  40.        170       130.       1.3                   8  35.
      72       95.     1.0                 8  30.        171        82.        .9                   8  25.
      73       80.     1.1                 8  30.        172      2183.       4.8                   9  10.
      74     4785.     6.6                10   0.        173       827.       1.9                   8  45.
      75      970.     3.7                 9  10.        174        42.        .7                   8  25.
      76      157.     1.3                 8  35.        175       686.       1.8                   8  40.
      77     1114.     3.3                 9  10.        176       612.       2.3                   8  40.
      78       27.      .5                 8  30.        177        69.        .9                   8  30.
      79      944.     3.0                 9   5.        178        34.        .7                   8  10.
      80      720.     1.7                 8  50.        179        53.        .3                   8  35.
      81      289.     1.7                 8  55.        180       336.       2.0                   8  30.
      82      135.     1.0                 8  40.        181        33.        .6                   8  10.
      83       24.      .5                 8  25.        182       186.       1.2                   8  25.
      84       90.      .9                 8  35.        183        40.        .6                   8  15.
      85       19.      .7                 8  30.        184       119.        .8                   8  20.
      86       54.      .8                 8  30.        185        25.        .7                   8  15.
      87      179.     1.5                 8  50.        186        83.        .9                   8  15.
      88      147.     1.0                 8  50.        187      1499.       3.5                   9  20.
      89      103.     1.4                 8  45.        192      1498.       3.5                   8  55.
      93       11.      .4                 8   5.        193       149.        .5                   8  25.
      94     3838.     5.1                10   5.        194       505.       1.8                   8  35.
      95     3297.     4.7                10  10.        195        17.        .3                   8  10.
      96     3282.     6.5                10   0.        196        23.        .6                   8  10.
      97     1176.     3.6                 8  45.        198       401.       1.7                   8  35.
      98      166.     1.4                 8  25.        199        36.        .7                   8  15.
      99     1019.     3.7                 8  40.        200        34.        .6                   8  10.
     100      242.     1.8                 8  30.        201       360.       1.7                   8  25.
     101      757.     3.4                 8  35.        202        19.        .5                   8  10.
     102      476.     2.4                 8  35.        203        89.       1.0                   8  10.
     103      419.     1.7                 8  25.        204       265.       1.3                   8  20.
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 205     1019.    3.0                      9   0.
 206       19.     .1                      8  10.
 207      999.    2.6                      8  50.
 208       20.     .3                      8  10.
 211     1021.    3.4                      8  35.
 212      256.    1.2                      8  25.
 213      160.    1.0                      8  25.
 214       91.     .7                      8  15.
 215      764.    2.6                      8  30.
 216      121.     .6                      8  15.
 217       18.     .1                      8  10.
 218      468.    2.7                      8  20.
 219      655.    2.3                      8  25.
 220      178.    1.1                      8  25.
 221       69.     .9                      8  10.
 222      402.    2.5                      8  20.
 223      111.     .7                      8  20.
 224      289.    2.3                      8  15.
 225       67.     .9                      8  10.
 226      110.     .6                      8  10.
 231     2279.    3.3                     12  40.
 232     2342.    (DIRECT FLOW)           12  30.
 233     2334.    4.2                     12  30.
 234      157.    2.6                      8  40.
 235      186.    1.0                      8  20.
 236     2342.    (DIRECT FLOW)           12  30.
 237     4434.    (DIRECT FLOW)           12   0.
 238     4434.    (DIRECT FLOW)           12   0.
 239      186.    (DIRECT FLOW)            8  20.
 240     4231.    3.9                     12   0.
 241     4282.    3.8                     11  40.
 242     4458.    (DIRECT FLOW)           10  55.
 243     3392.    3.4                     10  55.
 244     1148.    2.8                      8  20.
 245     4691.    6.7                      8  50.
 246     1969.    3.9                      8  30.
 247      663.    2.0                      8  30.
 248      558.    1.8                      8  30.
 249      363.    1.6                      8  20.
 250      936.    2.8                      8  30.
 251     2336.    (DIRECT FLOW)           12   0.
 252     2259.    (DIRECT FLOW)           12  30.
 261     6357.    (DIRECT FLOW)           10  40.
 262     3830.    2.6                     10  50.
 263     3830.    (DIRECT FLOW)           10  50.
 264     3583.    2.5                     10  55.
 265     3583.    (DIRECT FLOW)           10  55.
 266      229.    (DIRECT FLOW)           10  50.
 267     2639.    (DIRECT FLOW)           10  55.
 268     2602.     .1          44.3       11   5.
 269     1351.    (DIRECT FLOW)           10  55.
 270     5354.    7.6                     13  10.
 271     5358.    (DIRECT FLOW)           13   5.
 280     1411.    (DIRECT FLOW)           11   0.
 289     1100.    5.9                     11  50.
 290      865.    5.3                     11  10.
 291     2602.    (DIRECT FLOW)           11   5.
 292     1736.    2.8                     11  15.
 293      408.    6.8                     11   0.
 294     1411.    (DIRECT FLOW)           11   0.
 295      751.     .1          76.6       11  35.
 296      751.    (DIRECT FLOW)           11  35.
 297      727.    4.2                      8  10.
 298      111.     .1           2.1        8  25.
 299      154.     .8                      8  10.
 300       11.     .1          20.2       10  30.
 301      345.    1.0                      8  10.
 303      164.    (DIRECT FLOW)            8  10.
 304       62.    1.4                      8  25.
 308      307.    (DIRECT FLOW)           12   0.
 310      263.    (DIRECT FLOW)           12  10.
 311      593.    (DIRECT FLOW)            8  20.
 312      454.    5.0                     12  15.
 313      418.    (DIRECT FLOW)           12   5.
 314      307.    5.4                     12   0.
 315      260.    1.4                     12  20.
 316       84.    1.0                      8  15.
 317      262.    (DIRECT FLOW)           12  20.
 318      161.    2.9                      8  40.
 319     3086.    7.4                     13   5.
 320     1001.    2.5                     12  40.
 321      602.    1.9                     12  25.
 322     3037.    (DIRECT FLOW)           12  30.
 323      681.    (DIRECT FLOW)           12  20.
 324     1454.    (DIRECT FLOW)           12  20.
 325     1454.    (DIRECT FLOW)           12  20.
 326     1046.    6.2                     12  20.
 327      784.    5.6                     12  15.
 328      792.    (DIRECT FLOW)           12  10.
 329      357.    4.1                     12  15.
 330      361.    (DIRECT FLOW)           12   5.
 331      438.    (DIRECT FLOW)           12   5.
 332      657.    (DIRECT FLOW)           12   5.
 333      326.    1.6                     12  10.
 334      331.    1.6                     12   5.
 335      303.    2.6                     12   5.
 336      222.    (DIRECT FLOW)           12  10.
 337      435.    1.8                     12  10.
 338       81.    1.7                      8  25.
 339      333.    (DIRECT FLOW)           12   5.
 340      970.    (DIRECT FLOW)           12   0.
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 341     1308.    (DIRECT FLOW)           11  55.
 342     1638.    (DIRECT FLOW)           11  55.
 343     2055.    (DIRECT FLOW)           11  55.
 344      136.    (DIRECT FLOW)            8  15.
 345      309.    1.5                      8  15.
 346      175.    1.1                      8  10.
 347     2051.    6.5                     11  50.
 348      638.    (DIRECT FLOW)           12   5.
 349        9.     .3                      8  25.
 350      123.    3.1                      8  10.
 351     1334.    4.8                     11  45.
 352     2055.     .1          17.8       11  45.
 353       72.    1.0                      8  10.
 354      720.    2.5                     11  50.
 355       18.    2.1                      8  10.
 356     2055.     .1          15.9       11  55.
 357      520.    (DIRECT FLOW)            8  25.
 358      603.    4.4                      8  25.
 359     2060.    (DIRECT FLOW)           11  50.
 360     2062.    (DIRECT FLOW)           11  40.
 361       66.    (DIRECT FLOW)            8   5.
 362      417.    (DIRECT FLOW)           11  55.
 363       13.     .5                      8  10.
 366      136.    1.1                      8  15.
 367       58.     .8                      8  10.
 368      140.    (DIRECT FLOW)            8  10.
 369       47.     .8                      8   5.
 370      137.    (DIRECT FLOW)            8   5.
 371      212.    1.9                      8  20.
 372       96.    (DIRECT FLOW)            8  10.
 373       18.    1.1                      8  30.
 374       36.    1.4                     11  10.
 375      229.    (DIRECT FLOW)           10  55.
 376      229.    3.8                     10  55.
 377      109.    3.1                     11  50.
 378      348.    (DIRECT FLOW)           11  30.
 379      182.    (DIRECT FLOW)            8  15.
 380      182.    3.9                      8  15.
 381      261.    (DIRECT FLOW)           11  45.
 382      261.    5.4                     11  45.
 383      726.    (DIRECT FLOW)           11  40.
 384      150.    3.9                      8  10.
 385      108.    (DIRECT FLOW)           12   5.
 386      361.    (DIRECT FLOW)           12   5.
 387      103.    (DIRECT FLOW)           12  20.
 388      754.    (DIRECT FLOW)            8  45.
 389     2098.    (DIRECT FLOW)           12   0.
 390      957.    (DIRECT FLOW)            8  45.
 391      830.    6.4                     12  30.
 392      831.    (DIRECT FLOW)           12  20.
 393      603.    (DIRECT FLOW)            8  25.
 394      307.    1.6                     12   5.
 395      308.    (DIRECT FLOW)           12   5.
 396      416.    (DIRECT FLOW)           12   0.
 397     3134.     .1        1494.4       12  40.
 398      416.     .1           3.0       12   0.
 399     5354.    (DIRECT FLOW)           13  10.
1238      203.    (DIRECT FLOW)            8  45.
1262     2924.    (DIRECT FLOW)           10  45.
1267     2231.    (DIRECT FLOW)           10  55.
1289      239.    (DIRECT FLOW)           11  35.
1290      864.    (DIRECT FLOW)           11   5.
1291     2602.    (DIRECT FLOW)           11   5.
1293      409.    (DIRECT FLOW)           11   0.
1294     1341.    2.2                     11   0.
1295     1002.    (DIRECT FLOW)           11   5.
1296      751.    (DIRECT FLOW)           11  35.
1301      303.    (DIRECT FLOW)           12   5.
1302      303.    (DIRECT FLOW)           12   5.
1303      302.    (DIRECT FLOW)           12   5.
1304        1.    (DIRECT FLOW)           12   5.
1305      599.    (DIRECT FLOW)           12   5.
1306       59.    (DIRECT FLOW)           12  10.
1307      599.    (DIRECT FLOW)           12   5.
1308      657.    (DIRECT FLOW)           12   5.
1309      792.    (DIRECT FLOW)           12  10.
1310      111.    (DIRECT FLOW)           12  10.
1311      792.    (DIRECT FLOW)           12  10.
1312        0.    (DIRECT FLOW)           12  10.
1313      111.    (DIRECT FLOW)           12   5.
1320     1002.    (DIRECT FLOW)           12  30.
1321      608.    (DIRECT FLOW)           12  20.
1323      681.    (DIRECT FLOW)           12  20.
1325      489.    (DIRECT FLOW)            8  30.
1329       65.     .9                      8  10.
1330      117.    2.6                      8  25.
1331      385.    (DIRECT FLOW)           12   5.
1332      117.    (DIRECT FLOW)            8  25.
1333      332.    (DIRECT FLOW)           12   0.
1334      338.    (DIRECT FLOW)           11  55.
1335      330.    (DIRECT FLOW)           11  55.
1336      222.    (DIRECT FLOW)           12  10.
1337      602.    (DIRECT FLOW)           12  25.
1338      278.    (DIRECT FLOW)           12  25.
1339       25.    (DIRECT FLOW)            8  20.
1340      970.    (DIRECT FLOW)           12   0.
1341     1308.    (DIRECT FLOW)           11  55.
1342     1638.    (DIRECT FLOW)           11  55.
1343     2055.    (DIRECT FLOW)           11  55.
1348      638.    (DIRECT FLOW)           12   5.
1357      520.    (DIRECT FLOW)            8  25.
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 1360     494.     (DIRECT FLOW)          11  45.
 1361     276.     2.7                    12  25.
 1362     417.     (DIRECT FLOW)          11  55.
 1363     324.     (DIRECT FLOW)          12  25.
 1364     314.     3.0                    12  30.
 1365     324.     (DIRECT FLOW)          12  30.
 1366     105.     (DIRECT FLOW)          11  50.
 1367       2.     (DIRECT FLOW)           8  20.
 1368     117.     (DIRECT FLOW)           8  25.
 1369     117.     (DIRECT FLOW)           8  25.
 1370     114.     2.5                     8  30.
 1371       0.     (DIRECT FLOW)           8  25.
 1372     100.     (DIRECT FLOW)          12  40.
 1373     321.     (DIRECT FLOW)          12  40.
 1374      36.     (DIRECT FLOW)          10  55.
 1375     221.     (DIRECT FLOW)          12  40.
 1376     221.     2.8                    12  40.
 1377     100.     (DIRECT FLOW)          12  40.
 1378     348.     (DIRECT FLOW)          11  30.
 1381     261.     (DIRECT FLOW)          11  40.
 1382      29.     (DIRECT FLOW)          11  35.
 1383     722.     (DIRECT FLOW)          11  40.
 1386     361.     (DIRECT FLOW)          12   5.
 1387     103.     (DIRECT FLOW)          12  20.
 1392     772.     (DIRECT FLOW)          12  20.
 1393      83.     (DIRECT FLOW)           8  30.
 1396     416.     (DIRECT FLOW)          12   0.
 1401      31.     (DIRECT FLOW)           8  25.
 1402     681.     (DIRECT FLOW)          12  20.
 1403      83.     (DIRECT FLOW)          12  30.
 1404     193.     (DIRECT FLOW)          10  55.
 1405     231.     (DIRECT FLOW)          11  40.
 1406     180.     (DIRECT FLOW)           8  15.
 1407      53.     (DIRECT FLOW)          12   5.
 1408     111.     (DIRECT FLOW)           8  15.
 1409     153.     (DIRECT FLOW)          12  10.
 1410      45.     (DIRECT FLOW)           8   5.
 1411    5350.     5.5                    10   0.
 1412    5350.     (DIRECT FLOW)          10   0.
 1413    5350.     (DIRECT FLOW)          10   0.
 1414    3447.     (DIRECT FLOW)          10   5.
 1415      72.     (DIRECT FLOW)           8  15.
 1416     678.     3.2                     8  50.
 1420      81.     (DIRECT FLOW)           8  15.
 1421    7190.     6.3                     9  45.
 1423    7190.     (DIRECT FLOW)           9  45.
 1424    5470.     (DIRECT FLOW)           9  45.
 1425      16.     (DIRECT FLOW)           8   0.
 1426      54.     1.1                     8  15.
 1427    3433.     (DIRECT FLOW)          10  40.
 1428    1713.     2.8                     9  55.
 1429    2080.     (DIRECT FLOW)           9  50.
 1430      16.     (DIRECT FLOW)           8   0.
 1431      15.      .6                     8   5.
 1435      43.     (DIRECT FLOW)           8   0.
 1436      34.     1.2                     8  10.
 1438      49.     (DIRECT FLOW)           8  10.
 1440      43.     (DIRECT FLOW)           8  15.
 1441    7177.     6.4                     9  45.
 1442     914.     2.0                    10  45.
 1445      35.     (DIRECT FLOW)           8  10.
 1446      27.      .9                     8  20.
 1450      46.     (DIRECT FLOW)           8   5.
 1451    7366.     6.0                     9  30.
 1453    7378.     (DIRECT FLOW)           9  30.
 1455     186.     (DIRECT FLOW)           8  10.
 1456     156.      .6                     8  25.
 1457     156.     (DIRECT FLOW)           8  25.
 1460     100.     (DIRECT FLOW)           8   5.
 1461      91.     1.8                     8  10.
 1465      85.     (DIRECT FLOW)           8  15.
 1467     296.     (DIRECT FLOW)           8  20.
 1468     293.     2.2                     8  25.
 1480     841.     3.3                     8  15.
 1481       7.      .0         121.3      24  40.
 1482       7.     (DIRECT FLOW)          24  20.
 1490     251.     (DIRECT FLOW)           8  10.
 1491     209.     2.6                     9  10.
 1500     346.     (DIRECT FLOW)           8  10.
 1501     261.     2.6                     8  35.
 1505     345.     (DIRECT FLOW)           8  10.
 1506    1874.     3.5                    10  55.
 1507    6310.     (DIRECT FLOW)          10  35.
 1508    4490.     (DIRECT FLOW)          10  30.
 1509    1903.     (DIRECT FLOW)          10   0.
 1510      70.     (DIRECT FLOW)           8  20.
 1511    5422.     4.6                    10  30.
 1512    6286.     5.5                    10  40.
 1513    5422.     (DIRECT FLOW)          10  30.
 1514     932.     (DIRECT FLOW)          10  30.
 1515      27.     (DIRECT FLOW)           8   5.
 1517      48.     1.0                     8  55.
 1520     142.     (DIRECT FLOW)           8  10.
 1521    5516.     4.5                    10  15.
 1522    5580.     (DIRECT FLOW)          10  15.
 1525      77.     (DIRECT FLOW)           8  10.
 1526    2073.     3.4                     9  55.
 1528    1720.     (DIRECT FLOW)           9  50.
 1530     139.     (DIRECT FLOW)           8  15.
 1531     402.     2.1                     8  40.
 1532    2224.     (DIRECT FLOW)           9  50.
 1533    5569.     (DIRECT FLOW)          10   5.
 1534    3412.     3.2                    10  10.
 1537    2218.     3.5                     9  55.
 1541     239.     (DIRECT FLOW)           8   5.
 1542     166.     1.9                     8  25.
 1544    5567.     (DIRECT FLOW)          10  15
 1545     155.     (DIRECT FLOW)           8  15.
 1546     308.     2.1                     8  35.
 1548    5551.     2.7                    10  15.
 1550     421.     (DIRECT FLOW)           8  15.
 1551     533.     2.5                     8  35.
 1553     673.     (DIRECT FLOW)           8  35.
 1556      65.     (DIRECT FLOW)           8  15.
 1557     141.     1.9                     8  35.
 1560     143.     (DIRECT FLOW)           8  10.
 1561     142.     1.4                     8  15.
 1563     242.     (DIRECT FLOW)           8  15.
 1565     101.     (DIRECT FLOW)           8  10.
 1566     100.     1.2                     8  15.
 1570     105.     (DIRECT FLOW)           8  20.
 1571     105.      .6                     8  20.
 1575     276.     (DIRECT FLOW)           8  10.
 1576     221.     2.4                     8  25.
 1599    5828.     (DIRECT FLOW)          12  55.
 1600       7.     (DIRECT FLOW)           8   0.
 1601    6642.     5.2                     9  25.
 1603    7485.     (DIRECT FLOW)           9  20.
 1605      67.     (DIRECT FLOW)           8  15.
 1606     586.     2.6                     8  25.
 1610      50.     (DIRECT FLOW)           8   5.
 1611    6475.     4.9                     9  20.
 1615      81.     (DIRECT FLOW)           8  10.
 1616      68.     1.4                     8  20.
 1620     105.     (DIRECT FLOW)           8  10.
 1621     972.     3.7                     8  45.
 1623    1025.     (DIRECT FLOW)           8  40.
 1624    1033.     3.6                     8  45.
 1625     291.     (DIRECT FLOW)           8  10.
 1626    6353.     5.2                     9  15.
 1628    6628.     (DIRECT FLOW)           9  10.
 1630     144.     (DIRECT FLOW)           8  15.
 1631     407.     1.9                     8  35.
 1635     350.     (DIRECT FLOW)           8  10.
 1636     330.     1.9                     8  20.
 1640     273.     (DIRECT FLOW)           8  10.
 1641     183.     3.2                     8  30.
 1643     297.     (DIRECT FLOW)           8  30.
 1645     126.     (DIRECT FLOW)           8  15.
 1646     116.     1.3                     8  25.
 1650     524.     (DIRECT FLOW)           8  10.
 1651     696.     3.1                     8  20.
 1653    1075.     (DIRECT FLOW)           8  25.
 1655     441.     (DIRECT FLOW)           8  20.
 1656     393.     2.5                     8  30.
 1660     318.     (DIRECT FLOW)           8  15.
 1661     261.     2.1                     8  30.
 1665     651.     (DIRECT FLOW)           8   5.
 1666     593.     2.5                     8  15.
 1705      16.     (DIRECT FLOW)           8  10.
 1710      81.     (DIRECT FLOW)           8  10.
 1711      72.     1.0                     8  35.
 1712    1103.     (DIRECT FLOW)           8  45.
 1715      69.     (DIRECT FLOW)           8  10.
 1716      45.      .8                     8  50.
 1800    2121.     (DIRECT FLOW)           9  55.
 1812    2055.     (DIRECT FLOW)          11  45.
 1813    2055.     (DIRECT FLOW)          11  45.
 1814    1336.     (DIRECT FLOW)          11  45.
 1815     719.     (DIRECT FLOW)          11  50.
 1816     720.     2.4                    11  50.
 1817     720.     (DIRECT FLOW)          11  50.
 1818      23.      .9                     8   0.
 1820     726.     (DIRECT FLOW)          11  40.
 1821     184.     (DIRECT FLOW)           8  15.
 1822     333.     (DIRECT FLOW)          12   5.
 1905    3601.     (DIRECT FLOW)          10  50.
 1906    2065.     1.1                    12  20.
 1907     732.     2.5                     9   0.
 1908      98.     2.0                    12  45.
 1909    3037.     (DIRECT FLOW)          12  30.
 1910     265.     (DIRECT FLOW)          12   5.
 1911     969.     (DIRECT FLOW)           8  40.
 1912     957.     6.2                     8  45.
 1913    2051.     (DIRECT FLOW)          11  50.
 1914    2052.     5.4                    11  50.
 1915    2056.     (DIRECT FLOW)          11  50.
 1916    2913.     2.6                    10  50.
 1917      39.     1.0                     8  25.
 1919    2061.     (DIRECT FLOW)          11  40.
 1920     749.     4.9                     8  15.
 1921     761.     (DIRECT FLOW)           8  10.
 1922      11.      .3                    10  30.
 1923    1738.     (DIRECT FLOW)          11  10.
 1924    1103.     (DIRECT FLOW)          11  30.
 1925     109.     (DIRECT FLOW)          11  30.
 1926     155.     (DIRECT FLOW)          11  45.
 1927     203.     3.6                     8  55.
 1928    6655.     (DIRECT FLOW)           9  20.
 1929    1093.     2.8                     8  50.
 1931     238.     (DIRECT FLOW)           8  55.
 1932      81.      .9                     8  15.
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     1933       238.        2.3                    8   55.
     1934      2059.        3.0                   11   40.
     1935      3826.        (DIRECT FLOW)         10   45.
     1937       253.        (DIRECT FLOW)         12    5.
     1938       856.        (DIRECT FLOW)          8   10.
     1939       418.        (DIRECT FLOW)         12    5.
     1940       454.        (DIRECT FLOW)         12   10.
     1941        82.        1.0                    8   30.
     1942       111.        (DIRECT FLOW)         12   10.
     1943      3022.        6.7                   12   40.
     1944       321.        5.6                   12   40.
     1945       321.        (DIRECT FLOW)         12   40.
     1946      3243.        (DIRECT FLOW)         12   40.
     1947      5828.        (DIRECT FLOW)         12   55.
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UDSWMM

100-YEAR MODEL

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URBAN DRAINAGE STORM WATER MANAGEMENT MODEL -  32 BIT VERSION 1998
        REVISED BY UNIVERSITY OF COLORADO AT DENVER

 *** ENTRY MADE TO RUNOFF MODEL ***


 SBC CHANGES FROM DRAFT REPORT MODEL SBC_1N.SWI - ASSORTED MODIFICATIONS
 model sbc_1tc.swi with narrowing of conveyance 1330 overflow channel from 50' to

0NUMBER OF TIME STEPS  865
0INTEGRATION TIME INTERVAL (MINUTES)    5.00

  1.0 PERCENT OF IMPERVIOUS AREA HAS ZERO DETENTION DEPTH
0FOR   288 RAINFALL STEPS, THE TIME INTERVAL IS   5.00 MINUTES
0FOR RAINGAGE NUMBER   1   RAINFALL HISTORY IN INCHES PER HOUR

       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .07       .07       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .08       .08       .08       .08       .08
       .08       .08       .08       .08       .08       .09       .09       .09       .09       .09
       .09       .09       .09       .10       .10       .10       .10       .10       .10       .11
       .11       .11       .11       .11       .12       .12       .12       .12       .12       .13
       .13       .13       .14       .14       .14       .15       .15       .16       .16       .17
       .17       .18       .19       .20       .20       .21       .22       .24       .25       .27
       .29       .31       .34       .37       .41       .45       .51       .59       .69       .82
      1.01      1.28      1.69      2.34      3.39      4.36      4.04      2.80      1.97      1.46
      1.13       .91       .75       .63       .55       .48       .43       .38       .35       .32
       .30       .28       .26       .24       .23       .22       .21       .20       .19       .18
       .18       .17       .17       .16       .15       .15       .15       .14       .14       .14
       .13       .13       .13       .12       .12       .12       .12       .11       .11       .11
       .11       .11       .10       .10       .10       .10       .10       .10       .09       .09
       .09       .09       .09       .09       .09       .09       .08       .08       .08       .08
       .08       .08       .08       .08       .08       .08       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .07       .07       .07       .07       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
       .05       .05       .05       .05       .05       .05       .05       .05       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
       .04       .04       .04       .04       .04       .04       .04       .04
0FOR RAINGAGE NUMBER   2   RAINFALL HISTORY IN INCHES PER HOUR

       .07       .07       .07       .07       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .08       .08       .08       .08       .08
       .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
       .08       .08       .08       .08       .09       .09       .09       .09       .09       .09
       .09       .09       .09       .09       .09       .09       .09       .10       .10       .10
       .10       .10       .10       .10       .10       .11       .11       .11       .11       .11
       .11       .12       .12       .12       .12       .13       .13       .13       .14       .14
       .14       .15       .15       .16       .17       .17       .18       .19       .20       .22
       .23       .25       .27       .30       .33       .37       .41       .48       .56       .68
       .84      1.07      1.43      2.03      3.02      4.11      3.68      2.46      1.69      1.23
       .94       .75       .61       .52       .44       .39       .34       .31       .28       .26
       .24       .22       .21       .20       .19       .18       .17       .16       .16       .15
       .15       .14       .14       .13       .13       .13       .12       .12       .12       .12
       .11       .11       .11       .11       .11       .11       .10       .10       .10       .10
       .10       .10       .10       .10       .09       .09       .09       .09       .09       .09
       .09       .09       .09       .09       .09       .09       .09       .08       .08       .08
       .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
       .08       .08       .08       .08       .08       .08       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .07       .07       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06       .06       .06
       .06       .06       .06       .06       .06       .06       .06       .06
0FOR RAINGAGE NUMBER   3   RAINFALL HISTORY IN INCHES PER HOUR

       .07       .07       .07       .07       .07       .07       .07       .07       .07       .08
       .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
       .08       .08       .08       .08       .08       .08       .08       .08       .09       .09
       .09       .09       .09       .09       .09       .09       .09       .09       .09       .09
       .10       .10       .10       .10       .10       .10       .10       .10       .10       .11
       .11       .11       .11       .11       .11       .12       .12       .12       .12       .12
       .13       .13       .13       .14       .14       .14       .15       .15       .16       .16
       .17       .17       .18       .19       .19       .20       .21       .22       .24       .25
       .27       .29       .31       .34       .37       .41       .46       .51       .59       .68
       .81       .98       .22      1.60      2.24      3.64      2.78      1.87      1.39      1.09
       .89       .74       .63       .55       .48       .43       .39       .35       .32       .30
       .28       .26       .24       .23       .22       .21       .20       .19       .18       .17
       .17       .16       .16       .15       .15       .14       .14       .14       .13       .13
       .13       .13       .12       .12       .12       .12       .12       .11       .11       .11
       .11       .11       .11       .10       .10       .10       .10       .10       .10       .10
       .10       .09       .09       .09       .09       .09       .09       .09       .09       .09
       .09       .09       .09       .09       .08       .08       .08       .08       .08       .08
       .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
       .08       .08       .07       .07       .07       .07       .07       .07       .07       .07
       .07       .07       .07       .07       .07       .07       .07       .07       .07       .07
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         .07         .07         .07         .07         .07         .07         .07         .07         .07         .07
         .07         .07         .07         .07         .07         .07         .07         .07         .07         .07
         .07         .07         .07         .07         .07         .06         .06         .06         .06         .06
         .06         .06         .06         .06         .06         .06         .06         .06         .06         .06
         .06         .06         .06         .06         .06         .06         .06         .06         .06         .06
         .06         .06         .06         .06         .06         .06         .06         .06         .06         .06
         .06         .06         .06         .06         .06         .06         .06         .06         .06         .06
         .06         .06         .06         .06         .06         .06         .06         .06         .06         .06
         .06         .06         .06         .06         .06         .06         .06         .06
0FOR RAINGAGE NUMBER    4   RAINFALL HISTORY IN INCHES PER HOUR

         .07         .07         .07         .07         .07         .07         .07         .07         .07         .07
         .07         .08         .08         .08         .08         .08         .08         .08         .08         .08
         .08         .08         .08         .08         .09         .09         .09         .09         .09         .09
         .09         .09         .09         .09         .10         .10         .10         .10         .10         .10
         .10         .10         .11         .11         .11         .11         .11         .11         .11         .12
         .12         .12         .12         .12         .13         .13         .13         .13         .14         .14
         .14         .14         .15         .15         .15         .16         .16         .17         .17         .17
         .18         .19         .19         .20         .21         .21         .22         .23         .25         .26
         .27         .29         .31         .33         .36         .39         .43         .48         .54         .62
         .73         .87         .08        1.40        1.95        3.20        2.42        1.63        1.22         .97
         .80         .67         .58         .51         .46         .41         .38         .35         .32         .30
         .28         .27         .25         .24         .23         .22         .21         .20         .20         .19
         .18         .18         .17         .17         .16         .16         .16         .15         .15         .15
         .14         .14         .14         .13         .13         .13         .13         .13         .12         .12
         .12         .12         .12         .11         .11         .11         .11         .11         .11         .10
         .10         .10         .10         .10         .10         .10         .10         .10         .09         .09
         .09         .09         .09         .09         .09         .09         .09         .09         .08         .08
         .08         .08         .08         .08         .08         .08         .08         .08         .08         .08
         .08         .07         .07         .07         .07         .07         .07         .07         .07         .07
         .07         .07         .07         .07         .07         .07         .07         .07         .07         .07
         .07         .07         .07         .06         .06         .06         .06         .06         .06         .06
         .06         .06         .06         .06         .06         .06         .06         .06         .06         .06
         .06         .06         .06         .06         .06         .06         .06         .06         .06         .06
         .06         .06         .06         .06         .06         .06         .06         .06         .06         .06
         .06         .06         .06         .06         .06         .05         .05         .05         .05         .05
         .05         .05         .05         .05         .05         .05         .05         .05         .05         .05
         .05         .05         .05         .05         .05         .05         .05         .05         .05         .05
         .05         .05         .05         .05         .05         .05         .05         .05         .05         .05
         .05         .05         .05         .05         .05         .05         .05         .05
0FOR RAINGAGE NUMBER    5   RAINFALL HISTORY IN INCHES PER HOUR

         .05         .05         .05         .05         .05         .05         .05         .05         .05         .05
         .05         .05         .05         .05         .05         .05         .05         .06         .06         .06
         .06         .06         .06         .06         .06         .06         .06         .06         .06         .06
         .06         .06         .07         .07         .07         .07         .07         .07         .07         .07
         .07         .07         .07         .08         .08         .08         .08         .08         .08         .08
         .08         .09         .09         .09         .09         .09         .09         .10         .10         .10
         .10         .10         .11         .11         .11         .12         .12         .12         .13         .13
         .13         .14         .14         .15         .16         .16         .17         .18         .19         .20
         .21         .23         .24         .26         .29         .32         .35         .39         .44         .51
         .60         .72         .89        1.15        1.58        2.47        1.93        1.34        1.01         .80
         .66         .55         .48         .42         .37         .33         .30         .28         .25         .24
         .22         .21         .19         .18         .17         .17         .16         .15         .15         .14
         .14         .13         .13         .12         .12         .12         .11         .11         .11         .11
         .10         .10         .10         .10         .09         .09         .09         .09         .09         .09
         .08         .08         .08         .08         .08         .08         .08         .08         .07         .07
         .07         .07         .07         .07         .07         .07         .07         .07         .07         .06
         .06         .06         .06         .06         .06         .06         .06         .06         .06         .06
         .06         .06         .06         .06         .05         .05         .05         .05         .05         .05
         .05         .05         .05         .05         .05         .05         .05         .05         .05         .05
         .05         .05         .05         .05         .05         .05         .05         .05         .05         .05
         .04         .04         .04         .04         .04         .04         .04         .04         .04         .04
         .04         .04         .04         .04         .04         .04         .04         .04         .04         .04
         .04         .04         .04         .04         .04         .04         .04         .04         .04         .04
         .04         .04         .04         .04         .04         .04         .04         .04         .04         .04
         .04         .04         .04         .04         .04         .04         .04         .04         .04         .04
         .04         .04         .04         .04         .04         .04         .04         .04         .04         .04
         .04         .04         .04         .04         .03         .03         .03         .03         .03         .03
         .03         .03         .03         .03         .03         .03         .03         .03         .03         .03
         .03         .03         .03         .03         .03         .03         .03         .03
1


  SBC CHANGES FROM DRAFT REPORT MODEL SBC_1N.SWI - ASSORTED MODIFICATIONS
  model sbc_1tc.swi with narrowing of conveyance 1330 overflow channel from 50' to


  SUBAREA   GUTTER    WIDTH     AREA    PERCENT     SLOPE    RESISTANCE FACTOR  SURFACE STORAGE(IN)      INFILTRATION RATE(IN/HR)   GAG
  NUMBER  OR MANHOLE  (FT)      (AC)    IMPERV.    (FT/FT)     IMPERV.    PERV.     IMPERV.    PERV.   MAXIMUM MINIMUM DECAY RATE   NO
    227       226     7480.    286.0     30.0      .4076       .300      .500       .300      .470     3.90      .50      .00024     5
    226       225     6240.    152.0     30.0      .5701       .300      .500       .300      .470     3.90      .50      .00024     5
    225       224     8440.    488.0     20.0      .3704       .300      .500       .300      .470     4.50      .60      .00010     5
    224       223    11920.    309.0     20.0      .2882       .300      .500       .300      .450     3.50      .20      .00100     5
    222       221    13040.    250.0     20.0      .5139       .300      .500       .300      .450     3.90      .50      .00024     5
    221       220    15160.    506.0     20.0      .4510       .300      .500       .300      .450     3.50      .20      .00100     5
    219       218     3320.     44.0      6.0      .2945       .300      .500       .300      .470     3.90      .50      .00024     5
    220       219    10200.    437.0      5.0      .3544       .300      .500       .300      .480     4.50      .60      .00010     5
    223       222     2280.    182.0      6.0      .4444       .300      .500       .300      .470     4.80      .50      .00010     5
    214       216    16320.    505.0     20.0      .4409       .300      .500       .300      .450     3.90      .50      .00024     5
    212       214    13760.    482.0     15.0      .4325       .300      .500       .300      .450     3.90      .50      .00024     5
    211       213    11800.    511.0     20.0      .3390       .300      .500       .300      .440     3.50      .20      .00100     5
    210       212    12200.    588.0      5.0      .2915       .300      .500       .300      .420     4.80      .50      .00010     5
    213       215     6480.    539.0      6.0      .3847       .300      .400       .150      .420     3.90      .50      .00024     5
    215       217     9720.    245.0      5.0      .2985       .250      .450       .300      .500     3.90      .50      .00024     5
    209       211     6800.    284.0      6.0      .4718       .300      .400       .150      .460     3.90      .50      .00024     5
    185       186     8520.    461.0     15.0      .2842       .300      .500       .300      .450     4.80      .50      .00010     5
    184       185     7440.    232.0      8.0      .3661       .300      .500       .300      .400     3.90      .50      .00024     5
    182       183    16000.    599.0      6.0      .1690       .300      .500       .300      .450     4.50      .60      .00010     5
    180       181    13280.    438.0      6.0      .2725       .300      .500       .300      .450     4.50      .60      .00010     5
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 183   184    7080.  217.0   6.0  .2820  .300  .500  .300  .400  3.90  .50  .00024  5
 181   182    9200.  507.0   7.0  .2836  .300  .500  .300  .450  4.50  .60  .00010  5
 179   180    9040.  501.0   5.0  .2840  .250  .450  .300  .500  3.50  .20  .00100  4
 204   204   13440.  854.0  30.0  .3985  .300  .500  .300  .470  3.90  .50  .00024  5
 203   203    7000.  258.0  25.0  .4793  .300  .500  .300  .470  3.90  .50  .00024  5
 199   201   15400.  843.0   5.0  .3343  .300  .500  .300  .470  4.50  .60  .00010  5
 198   200   14440.  542.0   5.0  .2842  .300  .500  .300  .450  3.90  .50  .00024  5
 200   202    7640.  250.0   5.0  .2900  .300  .500  .300  .500  4.80  .50  .00010  5
 196   198   14440.  797.0   5.0  .4198  .250  .450  .300  .450  3.90  .50  .00024  5
 195   196   14640.  387.0   5.0  .2370  .250  .450  .300  .500  4.50  .60  .00010  5
 197   199   18040.  634.0   5.0  .2744  .250  .450  .300  .450  3.90  .50  .00024  5
 190   195    9520.  251.0   5.0  .2833  .250  .450  .300  .470  3.90  .50  .00024  5
 189   194   15120.  847.0   9.0  .3487  .150  .400  .300  .500  4.50  .50  .00010  4
 208   208    8520.  275.0   5.0  .3120  .250  .450  .300  .450  3.90  .50  .00024  5
 207   207    8560.  772.0   6.0  .4592  .150  .400  .300  .430  3.50  .20  .00100  5
 206   206    7720.  250.0   5.0  .3693  .250  .450  .300  .470  3.90  .50  .00024  5
 205   205    9800.  395.0   7.0  .4113  .150  .400  .300  .450  3.90  .50  .00024  4
 187   192    1540.  115.0   6.0  .5495  .150  .400  .300  .430  3.50  .20  .00100  4
 188   193    8960.  273.0   9.0  .3629  .150  .400  .300  .400  3.50  .20  .00100  4
 186   187   19200. 1018.0   8.0  .3200  .150  .400  .300  .450  3.90  .50  .00024  4
 177   178   13000.  392.0   7.0  .2685  .150  .400  .300  .450  3.90  .50  .00024  5
 178   179    7720.  211.0   5.0  .3191  .250  .450  .300  .420  3.50  .20  .00100  5
 175   176   15040.  716.0   5.0  .3492  .250  .450  .300  .400  3.50  .20  .00100  4
 176   177   12040.  233.0   6.0  .2396  .250  .450  .300  .450  3.90  .50  .00024  4
 174   175    3800.   78.0   5.0  .2684  .250  .450  .300  .450  3.90  .50  .00024  4
 173   174    8120.  188.0   8.0  .3071  .150  .400  .300  .430  3.90  .50  .00024  4
 172   173   11520.  230.0   5.0  .3401  .250  .450  .300  .400  3.50  .20  .00100  4
 171   172    3720.   73.0   7.0  .2083  .150  .400  .300  .450  3.90  .50  .00024  4
 167   168    7240.  259.0   5.0  .2386  .300  .500  .300  .500  3.90  .50  .00024  5
 168   169    6280.  175.0   5.0  .2720  .300  .500  .300  .500  3.90  .50  .00024  5
 164   165   13840.  350.0   6.0  .3519  .300  .500  .300  .470  3.90  .50  .00024  4
 166   167   10720.  215.0   6.0  .3188  .300  .500  .300  .500  3.90  .50  .00024  4
 165   166    1040.   99.0   5.0  .2782  .300  .500  .300  .500  3.90  .50  .00024  4
 170   171    8840.  139.0   5.0  .2244  .250  .450  .300  .400  3.50  .20  .00100  4
 169   170    9680.  332.0   5.0  .2538  .250  .450  .300  .400  3.50  .20  .00100  4
 162   163    5280.  112.0   5.0  .2935  .250  .450  .300  .470  3.90  .50  .00100  4
 163   164    8000.   76.0   5.0  .3938  .300  .500  .300  .450  3.90  .50  .00024  4
 156   157    1660.  103.0   7.0  .3821  .250  .450  .300  .460  3.50  .20  .00100  4
 160   161    8760.  341.0   5.0  .3148  .300  .500  .300  .470  3.90  .50  .00100  4
 161   162   11600.  362.0   5.0  .3269  .300  .500  .300  .470  3.90  .50  .00100  5
 158   159   12760.  476.0   5.0  .2852  .300  .500  .300  .470  3.90  .50  .00100  5
 159   160    6720.  342.0   6.0  .3021  .300  .500  .300  .470  3.90  .50  .00100  4
 155   156    9960.  523.0   6.0  .3280  .250  .450  .300  .400  3.90  .50  .00024  4
 157   158   11400.  344.0   5.0  .2728  .250  .450  .300  .460  3.90  .50  .00024  4
 152   153    8760.  249.0   5.0  .2831  .300  .500  .300  .500  3.90  .50  .00024  4
 153   154    5760.  249.0   6.0  .3299  .250  .450  .300  .450  3.90  .50  .00024  4
 154   155    2180.  161.0   5.0  .3792  .300  .500  .300  .400  3.50  .20  .00100  4
 148   149    6440.  214.0   6.0  .3001  .250  .450  .300  .400  3.50  .20  .00100  4
 149   150    5560.   58.0   6.0  .1610  .250  .450  .300  .400  3.50  .20  .00100  4
 150   151    8240.  189.0   5.0  .2338  .250  .450  .300  .400  3.50  .20  .00100  4
 151   152   13960.  501.0   8.0  .3572  .250  .450  .300  .450  3.90  .50  .00024  4
 145   146    6930.  318.0   5.0  .2782  .300  .500  .300  .460  3.90  .50  .00024  4
 146   147   11200.  283.0   5.0  .2727  .250  .450  .300  .500  3.90  .50  .00024  4
 147   148    5440.  453.0   5.0  .3306  .250  .450  .300  .470  3.90  .50  .00024  4
 141   142    4160.  103.0   6.0  .2843  .250  .450  .300  .450  3.90  .50  .00024  4
 142   143    9680.  187.0   5.0  .3565  .250  .450  .300  .470  3.90  .50  .00024  4
 143   144    4400.  274.0   5.0  .3218  .300  .500  .300  .460  3.90  .50  .00024  4
 144   145    4320.   79.0   5.0  .2164  .300  .500  .300  .500  3.90  .50  .00024  4
 139   140    8640.  184.0   6.0  .3125  .250  .450  .300  .460  3.90  .50  .00024  4
 140   141    7600.  132.0   5.0  .2104  .250  .450  .300  .450  3.50  .20  .00100  4
 136   137    6200.  142.0  15.0  .2104  .150  .400  .150  .470  3.50  .20  .00100  4
 137   138    8780.  383.0  10.0  .0823  .150  .400  .150  .420  3.50  .20  .00100  4
 138   139    3760.   70.0  15.0  .1898  .250  .450  .150  .450  3.90  .50  .00024  4
 133   134   20040.  530.0   8.0  .3229  .250  .450  .300  .460  3.90  .50  .00024  4
 134   135    8160.  160.0   5.0  .2440  .250  .450  .300  .450  3.90  .50  .00024  5
 135   136    6000.  282.0   5.0  .2300  .250  .450  .300  .460  3.90  .50  .00024  5
 130   131    9720.  290.0  12.0  .3042  .150  :400  .150  .500  3.90  .50  .00024  4
 131   132    9120.  213.0   8.0  .1964  .250  .450  .300  .470  3.90  .50  .00024  4
 132   133   15440.  496.0   7.0  .1806  .250  .450  .300  .470  3.90  .50  .00024  4
 128   129    7040.  151.0  12.0  .5988  .300  .500  .200  .450  3.90  .50  .00024  4
 129   130    6720.  110.0  15.0  .2077  .150  .400  .150  .450  3.90  .50  .00024  4
 124   125    7600.  220.0   5.0  .1948  .300  .500  .300  .500  3.90  .50  .00024  4
 125   126    6840.   88.0   5.0  .2679  .300  .500  .300  .500  3.90  .50  .00024  4
 126   127   16000.  548.0   8.0  .2341  .250  .450  .300  .480  3.90  .50  .00024  4
 120   124   15040.  397.0  13.0  .1127  .150  .400  .150  .500  3.90  .50  .00024  4
 127   128   17320.  472.0   8.0  .2160  .250  .450  .300  .470  3.90  .50  .00024  4
 118   122   18880.  481.0   8.0  .2138  .150  .400  .200  .450  3.90  .50  .00024  4
 119   123    8320.  389.0  12.0  .1613  .150  .400  .200  .450  3.90  .50  .00024  4
 113   116   19040.  702.0   5.0  .1137  .300  .500  .300  .500  3.90  .50  .00024  4
  93    96   12640.  579.0   5.0  .2560  .250  .450  .300  .460  3.90  .50  .00024  4
 230    95    8000.  200.0   5.0  .2312  .250  .450  .300  .450  3.90  .50  .00024  4
  88    85    3840.  118.0   5.0  .2369  .250  .450  .300  .400  3.90  .50  .00024  4
  89    86   11760.  331.0   5.0  .2521  .250  .450  .300  .400  3.90  .50  .00024  4
  90    87   16080.  655.0   5.0  .1364  .250  .450  .300  .400  3.50  .20  .00100  4
  84    81   12440.  303.0   5.0  .2148  .250  .450  .300  .400  3.50  .20  .00100  4
  85    82    2220.   96.0   5.0  .1143  .250  .450  .300  .400  3.50  .20  .00100  4
  86    83    4760.  197.0   5.0  .1438  .250  .450  .300  .400  3.90  .50  .00024  4
  87    84    5440.  106.0   5.0  .1919  .250  .450  .300  .400  3.90  .50  .00024  4
  83    80   31300.  862.0   9.0  .1050  .150  .400  .200  .400  3.50  .20  .00100  4
  74   121    9400.  326.0   6.0  .1923  .150  .400  .200  .400  3.50  .20  .00024  4
  70    79   16040.  633.0   7.0  .1589  .250  .450  .300  .400  3.50  .20  .00100  4
  61    75    3200.   62.0   5.0  .3363  .250  .450  .300  .400  3.90  .50  .00024  4
  63    76   12840.  379.0   8.0  .1972  .250  .450  .300  .400  3.50  .20  .00100  4
  65    77    4040.   66.0   8.0  .2100  .250  .450  .300  .430  3.90  .50  .00024  4
  66    78    7560.  256.0   5.0  .1250  .250  .450  .300  .450  3.90  .50  .00024  4
  58    74    9400.  411.0   8.0  .3384  .250  .450  .300  .400  3.50  .20  .00100  4
 228    89    8480.  319.0   8.0  .1659  .150  .400  .150  .450  3.50  .20  .00100  4
 229    93    4880.  111.0   5.0  .2059  .250  .450  .300  .450  4.50  .60  .00010  4
  91    88   16520.  352.0   6.0  .1576  .250  .450  .300  .450  3.90  .50  .00024  4
 114   117   12000.  390.0  15.0  .1571  .150  .400  .150  .430  3.90  .50  .00024  4
 115   118   16440.  453.0   6.0  .1736  .250  .450  .300  .460  3.90  .50  .00024  4
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116	119	2600.	34.0	15.0	.1472	.150	.400	.150	.500	3.90	.50	.00024	4
117	120	7960.	220.0	15.0	.1331	.150	.400	.150	.470	3.90	.50	.00024	4
101	104	6880.	205.0	15.0	.1564	.150	.400	.150	.450	3.50	.20	.00100	4
102	105	9120.	343.0	10.0	.1175	.150	.400	.150	.500	3.90	.50	.00024	4
103	106	12760.	273.0	8.0	.1121	.250	.450	.300	.500	3.90	.50	.00024	4
99	102	10440.	314.0	10.0	.1275	.150	.400	.150	.480	3.90	.50	.00024	4
100	103	8170.	150.0	8.0	.1343	.150	.400	.150	.450	3.90	.50	.00100	4
109	112	7280.	208.0	7.0	.4086	.250	.450	.300	.470	3.90	.50	.00024	4
110	113	10120.	209.0	7.0	.2899	.250	.450	.300	.500	3.90	.50	.00024	4
111	114	9000.	230.0	5.0	.2973	.300	.500	.300	.470	3.90	.50	.00024	5
112	115	6480.	102.0	6.0	.4123	.250	.450	.300	.460	3.90	.50	.00024	4
107	110	4140.	399.0	8.0	.3550	.250	.450	.300	.470	3.90	.50	.00024	4
105	108	12480.	202.0	5.0	.3863	.300	.500	.300	.470	3.90	.50	.00024	4
106	109	5520.	216.0	7.0	.1680	.250	.450	.300	.500	3.90	.50	.00024	4
108	111	11200.	199.0	5.0	.4732	.300	.500	.300	.460	3.90	.50	.00024	4
104	107	5440.	106.0	8.0	.2557	.250	.450	.300	.480	3.90	.50	.00024	4
97	100	19960.	458.0	7.0	.5159	.250	.450	.300	.480	3.50	.20	.00100	4
95	98	14000.	309.0	18.0	.1544	.250	.450	.200	.470	3.50	.20	.00100	4
96	99	2880.	55.0	10.0	.3003	.250	.450	.300	.480	3.50	.20	.00100	4
98	101	1380.	82.0	8.0	.1629	.250	.450	.200	.470	3.50	.20	.00100	4
94	97	11440.	472.0	8.0	.3012	.250	.450	.300	.470	3.90	.50	.00024	4
92	94	5120.	475.0	7.0	.1426	.250	.450	.300	.500	3.90	.50	.00024	4
56	72	8960.	197.0	7.0	.1792	.150	.400	.150	.420	3.50	.20	.00100	4
57	73	16000.	636.0	8.0	.1300	.150	.400	.150	.440	3.90	.50	.00024	4
55	71	9640.	261.0	7.0	.1967	.250	.450	.300	.470	3.50	.20	.00100	4
43	59	8040.	296.0	9.0	.1912	.150	.400	.150	.400	3.90	.50	.00024	4
47	63	7960.	234.0	6.0	.4083	.250	.450	.300	.470	3.90	.50	.00024	4
48	64	7480.	258.0	6.0	.3750	.250	.450	.300	.500	3.90	.50	.00024	4
45	61	15000.	552.0	8.0	.2077	.250	.450	.200	.470	3.50	.20	.00100	4
42	46	6440.	197.0	7.0	.3799	.250	.450	.200	.400	3.50	.20	.00100	4
44	60	8160.	225.0	7.0	.2515	.250	.450	.200	.470	3.50	.20	.00100	4
46	62	2800.	39.0	5.0	.3963	.250	.450	.300	.470	3.50	.20	.00100	4
50	66	6120.	108.0	6.0	.4444	.250	.450	.300	.500	3.90	.50	.00024	4
51	67	13240.	636.0	7.0	.3651	.250	.450	.300	.470	3.50	.20	.00100	4
53	69	7480.	197.0	12.0	.2552	.150	.400	.150	.470	3.50	.20	.00100	4
54	70	13920.	246.0	12.0	.2827	.150	.400	.150	.420	3.50	.20	.00100	4
49	65	7920.	212.0	5.0	.3375	.250	.450	.300	.480	3.90	.50	.00024	4
52	68	4240.	80.0	7.0	.3917	.250	.450	.300	.500	3.50	.20	.00100	4
41	42	15160.	593.0	8.0	.4922	.250	.450	.200	.450	3.90	.50	.00024	4
39	40	13160.	356.0	20.0	.4570	.250	.450	.100	.450	3.90	.50	.00024	4
40	41	6200.	205.0	9.0	.5172	.250	.450	.200	.500	3.50	.20	.00100	4
18	18	15200.	565.0	7.0	.3792	.250	.450	.200	.420	3.50	.20	.00100	3
19	20	10680.	606.0	9.0	.1670	.150	.400	.150	.470	3.90	.50	.00024	4
20	21	13920.	379.0	6.0	.3275	.250	.450	.300	.400	3.90	.50	.00024	3
14	14	6160.	132.0	25.0	.4006	.250	.450	.100	.500	3.50	.20	.00100	3
15	15	3000.	36.0	25.0	.3169	.250	.450	.100	.450	3.50	.20	.00100	3
16	16	3840.	117.0	25.0	.2094	.250	.450	.100	.400	3.50	.20	.00100	3
17	17	5640.	156.0	20.0	.3423	.250	.450	.100	.400	3.50	.20	.00100	3
8	8	14200.	1227.0	67.0	.2919	.250	.450	.050	.450	3.50	.20	.00100	3
37	38	5060.	368.0	7.0	.2400	.250	.450	.200	.420	3.90	.50	.00024	4
38	39	10280.	290.0	7.0	.3153	.250	.450	.300	.420	3.50	.20	.00100	4
36	37	16320.	466.0	5.0	.1439	.250	.450	.300	.480	3.90	.50	.00024	4
33	34	13680.	445.0	8.0	.1186	.150	.400	.200	.410	3.90	.50	.00024	4
34	35	6280.	148.0	7.0	.2940	.250	.450	.300	.420	3.50	.20	.00100	4
35	36	10680.	251.0	6.0	.1368	.250	.450	.300	.400	3.50	.20	.00100	4
31	32	6520.	144.0	6.0	.2938	.250	.450	.300	.420	3.90	.50	.00024	4
32	33	10360.	257.0	12.0	.1275	.150	.400	.150	.420	3.50	.20	.00100	4
30	31	5440.	107.0	7.0	.2363	.150	.400	.150	.450	4.50	.60	.00010	5
22	23	9840.	195.0	8.0	.1920	.250	.450	.200	.460	3.50	.20	.00100	3
29	30	11560.	546.0	12.0	.0980	.150	.400	.150	.450	3.50	.20	.00100	4
26	27	5080.	107.0	5.0	.2510	.250	.450	.300	.450	3.90	.50	.00024	5
27	28	5040.	300.0	9.0	.1461	.150	.400	.150	.430	3.90	.50	.00024	3
28	29	6120.	152.0	7.0	.2020	.150	.400	.150	.450	3.50	.20	.00100	4
24	25	5920.	363.0	9.0	.3292	.250	.450	.300	.450	3.50	.20	.00100	3
25	26	3720.	94.0	8.0	.1772	.150	.400	.150	.450	3.50	.20	.00100	5
23	24	1740.	104.0	7.0	.1530	.250	.450	.300	.450	3.50	.20	.00100	3
21	22	12000.	447.0	20.0	.2822	.150	.400	.200	.400	3.50	.20	.00100	3
9	9	20640.	411.0	8.0	.2894	.250	.450	.300	.470	3.90	.50	.00024	2
10	10	7520.	202.0	6.0	.3773	.250	.450	.300	.480	3.90	.50	.00024	2
7	7	9880.	373.0	7.0	.2911	.300	.500	.300	.500	3.90	.50	.00024	2
3	3	22000.	929.0	8.0	.3243	.250	.450	.200	.450	3.50	.20	.00100	2
4	4	25560.	960.0	8.0	.2675	.250	.450	.200	.500	3.50	.20	.00100	2
2	2	14480.	519.0	7.0	.4504	.300	.500	.300	.420	3.50	.20	.00100	2
6	6	16100.	296.0	10.0	.4790	.300	.500	.300	.450	3.50	.20	.00100	2
5	5	18300.	336.0	6.0	.2506	.300	.500	.300	.420	5.00	.60	.00006	2
1	1	30900.	567.0	7.0	.5000	.300	.500	.300	.420	3.50	.20	.00100	2
11	11	6000.	113.0	25.0	.3243	.250	.450	.200	.500	3.90	.50	.00024	2
12	12	8360.	159.0	6.0	.3715	.300	.500	.300	.500	3.90	.50	.00024	2
13	13	10480.	229.0	7.0	.3542	.300	.500	.300	.500	3.90	.50	.00024	2
256	247	39100.	808.0	7.0	.1652	.250	.450	.200	.450	3.50	.20	.00100	2
257	248	31200.	645.0	8.0	.2217	.250	.450	.200	.450	3.50	.20	.00100	2
258	249	18300.	377.0	7.0	.1984	.250	.450	.300	.420	3.50	.20	.00100	2
259	250	5300.	109.0	5.0	.1627	.250	.450	.300	.450	4.80	.50	.00010	2
253	244	36900.	848.0	50.0	.2354	.300	.500	.300	.350	3.90	.50	.00024	2
254	245	7300.	100.0	7.0	.2934	.250	.450	.200	.450	3.50	.20	.00100	2
255	246	21800.	450.0	8.0	.2396	.250	.450	.300	.450	3.50	.20	.00100	2
76	54	10300.	213.0	8.0	.3735	.300	.500	.300	.500	5.00	.60	.00006	2
77	55	25900.	297.0	7.0	.4316	.300	.500	.300	.500	5.00	.60	.00006	2
75	53	2400.	26.0	6.0	.4875	.300	.500	.300	.460	3.50	.20	.00024	2
73	52	38400.	441.0	18.0	.3662	.300	.500	.300	.400	3.50	.20	.00100	2
82	51	19700.	362.0	25.0	.3938	.250	.450	.300	.400	3.50	.20	.00100	2
71	50	11300.	207.0	25.0	.4627	.300	.500	.400	.450	3.50	.20	.00100	2
80	58	12000.	220.0	6.0	.3854	.300	.500	.300	.480	5.00	.60	.00006	2
81	57	42200.	776.0	8.0	.5226	.250	.450	.200	.470	4.50	.60	.00010	2
78	56	22000.	404.0	18.0	.4013	.250	.450	.300	.500	4.80	.50	.00010	2
79	56	21400.	442.0	15.0	.3303	.300	.500	.300	.450	4.50	.60	.00010	2
72	49	16000.	220.0	35.0	.5698	.300	.500	.300	.500	4.50	.50	.00010	2
69	48	9400.	391.0	35.0	.2301	.250	.450	.300	.400	3.90	.50	.00024	2
1635	1635	12865.	317.0	12.0	.3700	.300	.500	.300	.450	3.50	.20	.00100	2
1645	1645	5640.	126.0	5.0	.2900	.250	.450	.150	.450	3.50	.20	.00100	2
1640	1640	8667.	200.0	10.0	.2900	.300	.300	.320	.450	3.50	.20	.00100	2

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 1630    1630     8660.   159.0      6.0    .1300     .400     .450     .150     .450    3.50    .20     .00100   2
 1625    1625    10700.   197.0      9.0    .2100     .200     .400     .150     .450    3.50    .20     .00100   1
 1610    1610     6780.   109.0      9.0    .0200     .200     .400     .150     .450    4.80    .50     .00010   1
 1665    1665    14692.   390.0     35.0    .2870     .200     .400     .150     .450    3.50    .20     .00100   2
 1605    1605     7689.    81.0      6.0    .1100     .200     .400     .150     .450    4.80    .50     .00010   1
 1660    1660    23764.   552.0      7.0    .2000     .200     .450     .150     .460    3.90    .50     .00024   2
 1650    1650    13676.   382.0      7.0    .2300     .200     .200     .150     .450    3.50    .20     .00100   2
 1655    1655    22832.   558.0      6.0    .1600     .200     .450     .150     .460    3.50    .20     .00100   2
 1620    1620    17977.   324.0      7.0    .0500     .200     .400     .150     .470    4.80    .50     .00010   2
 1615    1615    11967.   228.0      7.0    .1200     .200     .400     .150     .470    4.50    .60     .00010   2
 1710    1710     9974.   245.0      5.0    .0100     .200     .400     .150     .350    3.90    .50     .00024   1
 1600    1600     3273.    25.0      7.0    .0500     .200     .450     .150     .600    5.00    .70     .00002   1
 1705    1705     2245.    67.0      5.0    .0100     .200     .400     .150     .350    3.90    .50     .00024   2
 1450    1450     4800.   198.0      5.0    .0200     .150     .450     .150     .600    3.90    .50     .00024   1
 1445    1445     6714.   164.0      5.0    .0800     .200     .400     .150     .350    5.00    .60     .00006   1
 1440    1440    12663.    66.0      7.0    .0100     .150     .450     .150     .600    3.90    .50     .00024   1
 1480    1938    34034.   732.0     35.0    .0200     .200     .400     .150     .300    3.90    .50     .00024   1
 1435    1435     6984.   232.0      5.0    .0800     .200     .400     .150     .460    5.00    .60     .00006   1
 1430    1430     6338.    82.0      5.0    .0700     .200     .400     .150     .460    5.00    .60     .00006   1
 1425    1425     4940.    68.0      6.0    .0400     .200     .400     .150     .600    5.00    .70     .00002   1
 1420    1420    26178.    59.0      9.0    .0220     .200     .450     .150     .600    3.90    .50     .00024   1
 1570    1570     3089.   171.0      6.0    .3540     .200     .450     .150     .450    3.50    .20     .00100   2
 1555    1556     7055.    83.0      7.0    .1300     .200     .450     .150     .450    4.80    .50     .00010   1
 1565    1565     4112.    95.0      9.0    .3200     .200     .450     .150     .470    3.50    .20     .00100   2
 1560    1560     5353.   123.0      8.0    .4400     .200     .450     .150     .450    3.50    .20     .00100   2
 1550    1550    20321.   424.0      7.0    .0700     .200     .400     .150     .450    3.50    .20     .00100   1
 1415    1415     5148.   307.0      5.0    .0260     .200     .400     .150     .500    3.90    .50     .00024   1
 1410    1410     5300.   195.0      5.0    .0100     .150     .450     .150     .500    3.90    .50     .00024   1
 1455    1455    19899.   542.0     11.0    .0037     .200     .400     .150     .350    4.80    .50     .00010   1
 1490    1490     8100.   698.0     10.0    .0620     .200     .400     .150     .350    4.50    .50     .00010   1
 1465    1465    19569.    93.0     10.0    .0348     .150     .500     .150     .350    4.50    .60     .00010   1
 1460    1460    12745.   286.0      9.0    .0603     .200     .400     .150     .350    5.00    .60     .00006   1
 1575    1575    10554.   222.0     10.0    .4060     .200     .450     .150     .450    3.50    .20     .00100   2
 1545    1545    15603.   253.0      7.0    .0890     .200     .400     .150     .450    4.80    .50     .00010   1
 1530    1530     8269.   345.0      6.0    .1080     .200     .400     .150     .350    4.80    .50     .00010   1
 1525    1525    14343.    53.0     10.0    .0200     .150     .400     .150     .350    3.90    .50     .00024   1
 1505    1505    49306.   262.0     10.0    .0100     .150     .450     .150     .350    3.50    .20     .00100   1
 1520    1520    21460.    99.0     10.0    .0100     .200     .450     .150     .350    3.50    .20     .00100   1
 1715    1715     3131.   115.0      7.0    .1200     .150     .400     .150     .350    3.90    .50     .00024   1
 1515    1515     3666.     8.0     60.0    .0200     .150     .400     .150     .350    3.50    .20     .00100   1
 1540    1541    19881.   345.0     15.0    .0300     .200     .400     .150     .350    4.50    .60     .00010   1
 1510    1510    16588.    76.0      3.0    .0100     .150     .400     .150     .350    3.90    .50     .00024   1
 1500    1500    21483.   465.0     10.0    .0400     .200     .400     .150     .250    3.90    .50     .00024   1
  299     299    20092.    72.0     40.0    .1300     .150     .500     .150     .350    4.80    .50     .00010   1
  301     301    38137.   177.0     31.0    .1600     .150     .500     .150     .350    4.80    .50     .00010   1
  297     297    84806.   338.0     40.0    .1200     .150     .500     .150     .350    4.80    .50     .00010   1
  305    1917     1795.   103.0     10.0    .0240     .150     .350     .150     .250    3.90    .50     .00024   1
  304     304     2970.   150.0     10.0    .0240     .150     .350     .150     .250    3.90    .50     .00024   1
  262     262     3964.    39.0      5.0    .0200     .200     .400     .150     .250    3.90    .50     .00024   1
  264     264     1734.    26.0      5.0    .0200     .200     .400     .150     .250    3.90    .50     .00024   1
  243     243    46293.    82.0      7.0    .0200     .200     .350     .150     .350    3.90    .50     .00024   1
  384     384    27915.    77.0     45.0    .0900     .150     .500     .150     .350    4.80    .50     .00010   1
  290     290     4748.    29.0      5.0    .0250     .300     .400     .150     .400    3.90    .50     .00024   1
  353     353    12867.    41.0     50.0    .0700     .150     .500     .150     .350    5.00    .60     .00006   1
  350     350    13939.    51.0     70.0    .0550     .150     .400     .150     .350    4.80    .50     .00010   1
  351     351    17043.    59.0     70.0    .0600     .150     .450     .150     .350    5.00    .60     .00006   1
  376     376     1390.     3.0     10.0    .0100     .150     .450     .150     .350    4.80    .50     .00010   1
  368     368     7225.    99.0     50.0    .0070     .150     .450     .150     .350    3.90    .50     .00024   1
  361     361     6400.    30.0     60.0    .0060     .150     .450     .150     .350    3.90    .50     .00024   1
  369     369     7449.    17.0     60.0    .0400     .150     .450     .150     .350    4.80    .50     .00010   1
  354    1818     6316.     6.0     95.0    .0400     .150     .350     .150     .250    4.80    .50     .00010   1
  355     355     9583.     7.0     65.0    .0400     .150     .350     .150     .250    4.80    .50     .00010   1
  363     363     9583.     7.0     33.0    .0550     .150     .350     .150     .250    4.80    .50     .00010   1
  366     366    26706.    81.0     45.0    .0550     .150     .500     .150     .350    4.80    .50     .00010   1
  367     367     9047.    23.0     65.0    .0450     .150     .500     .150     .350    4.80    .50     .00010   1
  373     373     4140.    38.0      6.0    .0200     .150     .400     .150     .350    4.80    .50     .00010   1
  241     241    45665.   343.0     45.0    .0200     .150     .400     .150     .450    3.90    .50     .00024   1
  346     346    21083.    71.0     40.0    .0600     .150     .450     .150     .350    3.90    .50     .00024   1
  345     345    20528.    78.0     50.0    .0600     .150     .450     .150     .350    4.80    .50     .00010   1
  349     349     1951.    13.0     15.0    .0200     .150     .450     .150     .350    4.80    .50     .00010   1
  347     347    11476.    55.0     65.0    .0500     .150     .400     .150     .350    4.80    .50     .00010   1
  371     371    12050.    83.0     50.0    .0500     .150     .450     .150     .250    4.80    .50     .00010   1
  338     338    14259.    73.0      8.0    .0250     .150     .350     .150     .250    3.90    .50     .00024   1
  333     333     6300.     5.0     60.0    .0400     .200     .450     .150     .550    3.50    .20     .00100   1
  334     334     6300.     5.0     60.0    .0400     .150     .350     .150     .250    3.50    .20     .00100   1
  240     240     2500.    46.0     25.0    .1100     .150     .450     .150     .600    3.90    .50     .00024   1
  318     318    20255.   157.0     20.0    .0300     .150     .550     .150     .500    3.90    .50     .00024   1
  335     335     8868.    36.0     45.0    .0500     .150     .450     .150     .450    3.90    .50     .00024   1
  336    1329    10002.    31.0     45.0    .0300     .150     .450     .150     .450    3.90    .50     .00024   1
  337     337    14520.    50.0     50.0    .0350     .150     .450     .150     .450    3.90    .50     .00024   1
  312     312     7094.    12.0     70.0    .0400     .150     .450     .150     .250    3.90    .50     .00024   1
  315     315     8712.    28.0     45.0    .0400     .150     .450     .150     .450    3.90    .50     .00024   1
  316     316    12777.    43.0     45.0    .0300     .150     .450     .150     .450    3.90    .50     .00024   1
  358     358     4084.    12.0     45.0    .0300     .150     .450     .150     .450    3.90    .50     .00024   1
  320     320    22099.   161.0     50.0    .0250     .250     .450     .250     .600    3.90    .50     .00024   1
 1323    1323     2406.     9.0     50.0    .0080     .150     .450     .150     .450    3.90    .50     .00024   1
  321     321    47509.    25.0     60.0    .0450     .150     .450     .150     .350    3.90    .50     .00024   1
  319     319    43000.   164.0     70.0    .0250     .150     .400     .150     .250    3.90    .50     .00024   1
  370     370    14400.    41.0     70.0    .0250     .150     .400     .150     .250    3.90    .50     .00024   1
  233     233    42776.   281.0     25.0    .0500     .150     .500     .150     .500    3.90    .50     .00024   1
  235     235    20400.   187.0     20.0    .1100     .150     .500     .150     .500    3.90    .50     .00024   1
  231     231    58487.   390.0     55.0    .0200     .150     .400     .150     .250    3.90    .50     .00024   1
OTOTAL NUMBER OF SUBCATCHMENTS, 314
OTOTAL TRIBUTARY AREA (ACRES),  86852.00
1


 SBC CHANGES FROM DRAFT REPORT MODEL SBC_1N.SWI - ASSORTED MODIFICATIONS
 model sbc_1tc.swi with narrowing of conveyance 1330 overflow channel from 50' to
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*** CONTINUITY CHECK FOR SUBCATCHMEMT ROUTING IN UDSWM386 MODEL ***

WATERSHED AREA (ACRES)                                 86852.000

TOTAL RAINFALL (INCHES)                                    4.002

TOTAL INFILTRATION (INCHES)                                2.881

TOTAL WATERSHED OUTFLOW (INCHES)                           1.094

TOTAL SURFACE STORAGE AT END OF STORM (INCHES)              .028

ERROR IN CONTINUITY, PERCENTAGE OF RAINFALL                -.023
1

SBC CHANGES FROM DRAFT REPORT MODEL SBC_1N.SWI - ASSORTED MODIFICATIONS
model sbc_1tc.swi with narrowing of conveyance 1330 overflow channel from 50' to


                                                      WIDTH             INVERT    SIDE SLOPES            OVERBANK/SURCHARGE
GUTTER     GUTTER       NDP       NP                 OR DIAM    LENGTH   SLOPE   HORIZ TO VERT   MANNING      DEPTH        JK
NUMBER   CONNECTION                                    (FT)      (FT)   (FT/FT)     L     R         N         (FT)

 226        224         0         1      CHANNEL       20.0     3740.    .1337     4.0   4.0      .040      15.00       0
 225        224         0         1      CHANNEL        5.0     1862.    .0600    10.0  10.0      .045      15.00       0
 224        222         0         1      CHANNEL        4.0     4220.    .1300     3.0   3.0      .055      15.00       0
 223        222         0         1      CHANNEL       10.0     5960.    .1406    10.0  10.0      .040      15.00       0
 222        218         0         1      CHANNEL        5.0     2280.    .1000     4.0   4.0      .055      15.00       0
 221        218         0         1      CHANNEL        5.0     6520.    .1992     5.0   5.0      .055      15.00       0
 220        219         0         1      CHANNEL        8.0     7580.    .2107     7.0   7.0      .050      15.00       0
 218        219         0         1      CHANNEL        5.0     1660.    .0900     4.0   4.0      .055      15.00       0
 219        215         0         1      CHANNEL       10.0     2531.    .1000     7.0   7.0      .055      15.00       0
 216        215         0         1      CHANNEL       20.0     8160.    .1875    10.0  10.0      .055      15.00       0
 214        212         0         1      CHANNEL       10.0     6880.    .1727    10.0  10.0      .055      15.00       0
 213        212         0         1      CHANNEL       10.0     5900.    .1268    10.0  10.0      .055      15.00       0
 212        211         0         1      CHANNEL       15.0     6100.    .1511     7.0   7.0      .060      15.00       0
 215        211         0         4      CHANNEL       10.0     5210.    .0600     4.0   4.0      .050       2.00       0
                                           OVERFLOW    50.0     5210.    .0600     6.0   6.0      .055      25.00
 217        215         0         1      CHANNEL       20.0     4860.    .3560     5.0   5.0      .040      15.00       0
 211        207         0         4      CHANNEL        8.0     2390.    .0500     3.0   3.0      .050       2.00       0
                                           OVERFLOW    25.0     2390.    .0500     5.0   5.0      .055      25.00
 186        184         0         1      CHANNEL       10.0     4260.    .1002     9.0   9.0      .060      15.00       0
 185        184         0         1      CHANNEL        5.0     3720.    .0594     6.0   6.0      .060      15.00       0
 183        182         0         1      CHANNEL       10.0     8000.    .1050     6.0   6.0      .060      15.00       0
 181        180         0         1      CHANNEL        5.0     6640.    .1583     7.0   7.0      .060      15.00       0
 184        182         0         1      CHANNEL       15.0     3540.    .1158     8.0   8.0      .055      15.00       0
 182        180         0         4      CHANNEL       15.0     4600.    .0720     4.0   4.0      .050       2.50       0
                                           OVERFLOW   100.0     4370.    .0758    15.0  15.0      .055      20.00
 180        176         0         4      CHANNEL       10.0     4520.    .0507     4.0   4.0      .045       3.00       0
                                           OVERFLOW    35.0     4294.    .0534     3.0   3.0      .060      20.00
 204        201         0         1      CHANNEL       15.0     6720.    .0911     6.0   6.0      .050      15.00       0
 203        201         0         1      CHANNEL        5.0     3500.    .2286     5.0   5.0      .055      15.00       0
 201        198         0         4      CHANNEL       15.0     7700.    .0835     4.0   4.0      .050       3.00       0
                                           OVERFLOW    50.0     7315.    .0879     7.0   7.0      .060      20.00
 200        198         0         1      CHANNEL        5.0     7220.    .1722     7.0   7.0      .055      15.00       0
 202        198         0         1      CHANNEL        5.0     3820.    .1971     5.0   5.0      .060      15.00       0
 198        194         0         4      CHANNEL       25.0     7220.    .0370     4.0   4.0      .050       3.00       0
                                           OVERFLOW   200.0     6860.    .0389     7.0   7.0      .060      20.00
 199        194         0         1      CHANNEL        5.0     9020.    .1233     6.0   6.0      .060      15.00       0
 196        194         0         1      CHANNEL        5.0     7320.    .1243     5.0   5.0      .060      15.00       0
 195        194         0         1      CHANNEL       10.0     4760.    .1513     5.0   5.0      .060      15.00       0
 194        192         0         4      CHANNEL       20.0     7560.    .0921     4.0   4.0      .055       3.00       0
                                           OVERFLOW    80.0     7182.    .0969    10.0  10.0      .060      20.00
 208        207         0         1      CHANNEL       10.0     4260.    .2230     8.0   8.0      .060      15.00       0
 207        205         0         4      CHANNEL       25.0     5000.    .0150     4.0   4.0      .040       2.00       0
                                           OVERFLOW   200.0     5000.    .0150    10.0  10.0      .050      25.00
 206        205         0         1      CHANNEL       25.0     3860.    .2591     5.0   5.0      .040      15.00       0
 205        192         0         4      CHANNEL       20.0     4900.    .0349     4.0   4.0      .045       3.00       0
                                           OVERFLOW   100.0     4900.    .0349     8.0   8.0      .055      25.00
 192        187         0         4      CHANNEL       32.0     1540.    .0120     4.0   4.0      .040       3.00       0
                                           OVERFLOW   250.0     1540.    .0120    20.0  20.0      .050      25.00
 193        187         0         1      CHANNEL       25.0     4480.    .1897     4.0   4.0      .040      15.00       0
 187        172         0         4      CHANNEL       32.0     7388.    .0100     4.0   4.0      .040       3.00       0
                                           OVERFLOW   250.0     7388.    .0100    20.0  20.0      .050      25.00
 178        177         0         1      CHANNEL        5.0     6500.    .1186     8.0   8.0      .060      15.00       0
 177        175         0         1      CHANNEL        8.0     6020.    .0862     7.0   7.0      .055      15.00       0
 179        176         0         1      CHANNEL       20.0     3860.    .2383     5.0   5.0      .045      15.00       0
 176        175         0         4      CHANNEL       20.0     7520.    .0386     4.0   4.0      .045       3.00       0
                                           OVERFLOW   100.0     7144.    .0406     5.0   5.0      .060      20.00
 174        173         0         1      CHANNEL        5.0     4060.    .1421     6.0   6.0      .055      15.00       0
 175        173         0         4      CHANNEL       30.0     1900.    .0353     4.0   4.0      .035       3.00       0
                                           OVERFLOW   150.0     1805.    .0372    15.0  15.0      .045      20.00
 173        172         0         4      CHANNEL       25.0     5760.    .0587     4.0   4.0      .035       3.00       0
                                           OVERFLOW   200.0     5472.    .0618    15.0  15.0      .045      20.00
 172        157         0         4      CHANNEL       25.0     1860.    .0100     3.0   3.0      .045       3.00       0
                                           OVERFLOW    75.0     1860.    .0100     5.0   5.0      .050      25.00
 168        165         0         1      CHANNEL        5.0     3620.    .1740     7.0   7.0      .060      15.00       0
 169        165         0         1      CHANNEL        5.0     3140.    .1720     7.0   7.0      .060      15.00       0
 165        166         0         1      CHANNEL       10.0     6920.    .1026     5.0   5.0      .060      15.00       0
 167        166         0         1      CHANNEL        5.0     5360.    .1940     6.0   6.0      .060      15.00       0
 166        163         0         1      CHANNEL       15.0     1040.    .0673    10.0  10.0      .055      15.00       0
 164        163         0         1      CHANNEL       10.0     4000.    .1263     8.0   8.0      .050      15.00       0
 163        157         0         1      CHANNEL       25.0     2640.    .0568     5.0   5.0      .050      15.00       0
 170        157         0         1      CHANNEL        5.0     4840.    .1543     5.0   5.0      .055      15.00       0
 171        157         0         1      CHANNEL        5.0     4420.    .1837     7.0   7.0      .055      15.00       0
 157        156         0         4      CHANNEL       25.0     1660.    .0220     3.0   3.0      .045       3.00       0
                                           OVERFLOW    75.0     1660.    .0220     4.0   4.0      .050      25.00
 161        160         0         1      CHANNEL        5.0     4380.    .1667     5.0   5.0      .060      15.00       0
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 162      160      0      1    CHANNEL      5.0    5800.   .2121    5.0   5.0    .060    15.00    0
 160      158      0      1    CHANNEL     10.0    3360.   .0908   10.0  10.0    .055    15.00    0
 159      158      0      1    CHANNEL     10.0    6380.   .1293    6.0   6.0    .060    15.00    0
 158      156      0      1    CHANNEL     20.0    5700.   .0619    5.0   5.0    .050    15.00    0
 156      154      0      4    CHANNEL     35.0    4980.   .0190    3.0   3.0    .050     3.00    0
                                 OVERFLOW 100.0    4980.   .0190    3.0   3.0    .055    25.00
 155      154      0      1    CHANNEL     12.0    2180.   .2683    4.0   4.0    .050    15.00    0
 153      152      0      1    CHANNEL     12.0    4380.   .1530    4.0   4.0    .060    15.00    0
 154      152      0      4    CHANNEL     35.0    2880.   .0200    3.0   3.0    .050     3.00    0
                                 OVERFLOW 100.0    2880.   .0200    3.0   3.0    .055    25.00
 152      149      0      4    CHANNEL     30.0    6980.   .0150    4.0   4.0    .045     3.00    0
                                 OVERFLOW 200.0    6980.   .0150    5.0   5.0    .050    25.00
 150      149      0      1    CHANNEL      5.0    2780.   .1691    4.0   4.0    .055    15.00    0
 151      149      0      1    CHANNEL      6.0    4120.   .1286    4.0   4.0    .055    15.00    0
 149      139      0      4    CHANNEL     35.0    3220.   .0140    4.0   4.0    .045     3.00    0
                                 OVERFLOW 300.0    3220.   .0140    5.0   5.0    .050    25.00
 147      146      0      1    CHANNEL      8.0    5600.   .1625    6.0   6.0    .060    15.00    0
 148      146      0      1    CHANNEL      8.0    2720.   .1048    8.0   8.0    .060    15.00    0
 146      142      0      1    CHANNEL     10.0    5540.   .0727    8.0   8.0    .055    15.00    0
 144      143      0      1    CHANNEL      5.0    2200.   .1568    8.0   8.0    .060    15.00    0
 145      143      0      1    CHANNEL      3.0    2160.   .1574    5.0   5.0    .060    15.00    0
 143      142      0      1    CHANNEL      8.0    4840.   .1184    5.0   5.0    .060    15.00    0
 142      140      0      1    CHANNEL     10.0    2080.   .0514    8.0   5.0    .055    15.00    0
 141      140      0      1    CHANNEL      5.0    3800.   .1237    5.0   5.0    .060    15.00    0
 140      139      0      1    CHANNEL     15.0    4320.   .0505    8.0   7.0    .055    15.00    0
 138      137      0      1    CHANNEL     10.0    5440.   .0432   10.0  10.0    .055    15.00    0
 139      137      0      4    CHANNEL     30.0    1880.   .0160    4.0   4.0    .045     3.00    0
                                 OVERFLOW 200.0    1880.   .0160    5.0   5.0    .050    25.00
 137      129      0      4    CHANNEL     30.0    2009.   .0130    4.0   4.0    .040     3.00    0
                                 OVERFLOW 200.0    2009.   .0130    5.0   5.0    .050    25.00
 135      134      0      1    CHANNEL      5.0    4080.   .1716    5.0   5.0    .060    15.00    0
 136      134      0      1    CHANNEL      5.0    3000.   .1433    6.0   6.0    .060    15.00    0
 134      133      0      1    CHANNEL     10.0   10020.   .0868    5.0   5.0    .055    15.00    0
 133      130      0      1    CHANNEL     15.0    7720.   .0505    5.0   5.0    .055    15.00    0
 131      130      0      4    CHANNEL     15.0    4860.   .1008    3.0   3.0    .055     3.00    0
                                 OVERFLOW 100.0    4617.   .1061   10.0  10.0    .060    20.00
 132      130      0      1    CHANNEL      8.0    4560.   .0789    6.0   6.0    .060    15.00    0
 130      129      0      1    CHANNEL     25.0    3360.   .0363    7.0   7.0    .055    15.00    0
 129       96      0      4    CHANNEL     30.0    3520.   .0160    3.5   3.5    .055     4.00    0
                                 OVERFLOW 100.0    3520.   .0160    4.0   4.0    .060    25.00
 125      124      0      1    CHANNEL      5.0    3800.   .1842    8.0   8.0    .055    15.00    0
 126      124      0      1    CHANNEL      5.0    3420.   .1871    6.0   6.0    .060    15.00    0
 124      122      0      1    CHANNEL     10.0    7520.   .0535    8.0   8.0    .055    15.00    0
 127      123      0      1    CHANNEL     10.0    8000.   .1056   10.0  10.0    .055    15.00    0
 128      123      0      1    CHANNEL     10.0    8660.   .1236   15.0  15.0    .055    15.00    0
 123      122      0      1    CHANNEL     15.0    4160.   .0317   15.0  15.0    .055    15.00    0
 122       96      0      1    CHANNEL     20.0    9440.   .0607    5.0   5.0    .060    15.00    0
  96       95      0      4    CHANNEL     25.0    6320.   .0170    2.0   2.0    .055     4.00    0
                                 OVERFLOW  50.0    6320.   .0170    2.0   2.0    .060    25.00
 116       95      0      4    CHANNEL      5.0    9520.   .0772    3.0   3.0    .050     2.50    0
                                 OVERFLOW  70.0    9044.   .0813    8.0   8.0    .055    20.00
  95       94      0      4    CHANNEL     30.0    4000.   .0120    3.0   3.0    .040     3.00    0
                                 OVERFLOW 150.0    4000.   .0120    5.0   5.0    .050    25.00
  85       84      0      1    CHANNEL      5.0    2220.   .0396    4.0   4.0    .060    15.00    0
  86       84      0      1    CHANNEL      8.0    5880.   .1259    4.0   4.0    .060    15.00    0
  84       82      0      1    CHANNEL     10.0    2720.   .0890   10.0  10.0    .060    15.00    0
  83       82      0      1    CHANNEL     10.0    2380.   .0450   12.0  12.0    .060    15.00    0
  82       80      0      1    CHANNEL     20.0    2220.   .0396   12.0  12.0    .060    15.00    0
  87       81      0      1    CHANNEL     10.0    8040.   .0796    5.0   5.0    .065    15.00    0
  81       80      0      1    CHANNEL     15.0    6220.   .0691    7.0   7.0    .065    15.00    0
  80       79      0      1    CHANNEL     20.0    6380.   .1993   10.0  10.0    .065    15.00    0
 121       79      0      4    CHANNEL      8.0    4700.   .0660    4.0   4.0    .055     2.50    0
                                 OVERFLOW  60.0    4465.   .0695   12.0  12.0    .057    20.00
  79       75      0      1    CHANNEL     25.0    8020.   .0212   10.0  10.0    .060    15.00    0
  78       75      0      1    CHANNEL      8.0    3780.   .0688   20.0  20.0    .060    15.00    0
  75       77      0      1    CHANNEL     25.0    1600.   .0188    3.0   5.0    .060    15.00    0
  77       74      0      1    CHANNEL     40.0    2020.   .0198    3.0   3.0    .060    15.00    0
  76       74      0      4    CHANNEL     10.0    6420.   .0779    4.0   4.0    .050     2.00    0
                                 OVERFLOW  60.0    6420.   .0779    8.0   8.0    .055    20.00
  74       59      0      4    CHANNEL     30.0    4700.   .0130    4.0   4.0    .050     4.00    0
                                 OVERFLOW  75.0    4700.   .0130    4.0   3.0    .055    25.00
  89       88      0      1    CHANNEL      8.0    4240.   .0217   10.0  10.0    .055    15.00    0
  93       88      0      1    CHANNEL      5.0    2440.   .0984   10.0  10.0    .055    15.00    0
  88       77      0      4    CHANNEL     11.0    7200.   .1380   10.0  10.0    .060     3.00    0
                                 OVERFLOW 100.0    7200.   .1360   50.0  50.0    .045    20.00
 120      119      0      4    CHANNEL      5.0    3980.   .0879    3.0   3.0    .050     3.00    0
                                 OVERFLOW 200.0    3781.   .0925   10.0  10.0    .055    20.00
 118      119      0      4    CHANNEL      5.0    8220.   .1095    3.0   3.0    .050     3.00    0
                                 OVERFLOW 150.0    7809.   .1153   10.0  10.0    .055    20.00
 119      104      0      4    CHANNEL      5.0    1300.   .0400    3.0   3.0    .050     3.00    0
                                 OVERFLOW 150.0    1235.   .0421   10.0  10.0    .055    20.00
 117      104      0      4    CHANNEL      5.0    6000.   .0587    3.0   3.0    .050     3.00    0
                                 OVERFLOW 100.0    5700.   .0618   10.0  10.0    .055    20.00
 104      103      0      4    CHANNEL     10.0    3440.   .0343    3.0   3.0    .045     3.00    0
                                 OVERFLOW 150.0    3268.   .0361   10.0  10.0    .050    20.00
 105      103      0      4    CHANNEL      5.0    4560.   .0811    3.0   3.0    .045     3.00    0
                                 OVERFLOW 100.0    4332.   .0854   10.0  10.0    .050    20.00
 106      102      0      4    CHANNEL      5.0    6380.   .0690    3.0   3.0    .045     3.00    0
                                 OVERFLOW  70.0    6061.   .0726   10.0  10.0    .050    20.00
 103      102      0      4    CHANNEL      8.0    1380.   .0362    4.0  40.0    .050     3.00    0
                                 OVERFLOW  68.0    1311.   .0381   25.0  25.0    .055    20.00
 102      101      0      4    CHANNEL     11.0    5220.   .0383    8.0   8.0    .055     3.00    0
                                 OVERFLOW 100.0    4959.   .0403    5.0   5.0    .060    20.00
 114      112      0      1    CHANNEL      5.0    4500.   .1467    5.0   5.0    .060     8.00    0
 115      112      0      1    CHANNEL      5.0    3240.   .1759    5.0   5.0    .060     8.00    0
 112      110      0      4    CHANNEL      5.0    3640.   .1745    3.0   3.0    .055     2.50    0
                                 OVERFLOW  40.0    3458.   .1837   10.0   8.0    .060    20.00
 113      110      0      4    CHANNEL      5.0    5060.   .1690    3.0   3.0    .055     3.00    0
                                 OVERFLOW  40.0    4807.   .1779   10.0  10.0    .060    20.00
 110      109      0      4    CHANNEL     11.0    4140.   .0531    4.0   4.0    .055     3.00    0
                                 OVERFLOW  60.0    3933.   .0559   50.0  50.0    .060    20.00
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  111        109          0        4     CHANNEL        5.0     5600.     .2348     3.0   3.0     .050      2.00     0
                                           OVERFLOW    20.0     5320.     .2472     6.0   6.0     .055     20.00
  108        107          0        4     CHANNEL        5.0     6240.     .1875     3.0   3.0     .050      2.00     0
                                           OVERFLOW    20.0     5928.     .1974     6.0   6.0     .055     20.00
  109        107          0        4     CHANNEL       11.0     2760.     .0525     4.0   4.0     .050      3.00     0
                                           OVERFLOW    60.0     2622.     .0553     6.0   6.0     .055     20.00
  107        101          0        4     CHANNEL       11.0     2720.     .0368     4.0   4.0     .050      3.00     0
                                           OVERFLOW    45.0     2584.     .0387     6.0   6.0     .055     20.00
  101         99          0        4     CHANNEL       11.0     1380.     .0268     4.0   4.0     .050      3.00     0
                                           OVERFLOW    50.0     1311.     .0282     5.0   5.0     .055     20.00
  100         99          0        4     CHANNEL        5.0     9980.     .1735     3.0   3.0     .050      2.00     0
                                           OVERFLOW    25.0     9481.     .1826     5.0   5.0     .055     20.00
   99         97          0        4     CHANNEL       11.0     1440.     .0299     4.0   4.0     .050      3.00     0
                                           OVERFLOW    50.0     1368.     .0315     5.0   5.0     .055     20.00
   98         97          0        4     CHANNEL        8.0     7000.     .1179     3.0   3.0     .050      2.00     0
                                           OVERFLOW    35.0     6650.     .1241     6.0   6.0     .055     20.00
   97         94          0        4     CHANNEL       11.0     5720.     .0332     4.0   4.0     .050      2.50     0
                                           OVERFLOW    50.0     5434.     .0349     4.0   4.0     .055     20.00
   94         74          0        4     CHANNEL       32.0     2560.     .0120     4.0   4.0     .040      3.50     0
                                           OVERFLOW   150.0     2560.     .0120     8.0   8.0     .050     25.00
   72         71          0        1     CHANNEL       10.0     4480.     .0808     5.0   5.0     .055     15.00     0
   73         71          0        1     CHANNEL       10.0     8000.     .0303     8.0   8.0     .055     15.00     0
   71         59          0        1     CHANNEL       12.0     4820.     .0664     5.0   5.0     .060     15.00     0
   59         46          0        4     CHANNEL       30.0     4020.     .0140     4.0   4.0     .050      4.00     0
                                           OVERFLOW    60.0     4020.     .0140     3.0   3.0     .055     25.00
   63         61          0        1     CHANNEL        9.0     6420.     .0779     5.0   5.0     .070     20.00     0
   64         61          0        1     CHANNEL        9.0     2020.     .0198     5.0   5.0     .070     20.00     0
   61         62          0        1     CHANNEL       12.0     7500.     .0633     5.0   5.0     .070     20.00     0
   60         46          0        1     CHANNEL       12.0     4080.     .1262     5.0   5.0     .060     20.00     0
   46         42          0        4     CHANNEL       25.0     3220.     .0300     3.0   3.0     .055      5.00     0
                                           OVERFLOW    50.0     3220.     .0300     4.0   4.0     .060     25.00
   66         65          0        1     CHANNEL        9.0     3060.     .2026     4.0   4.0     .060     15.00     0
   67         65          0        4     CHANNEL       10.0     6620.     .0853     3.0   3.0     .050      4.00     0
                                           OVERFLOW    45.0     6289.     .0898     3.0   3.0     .060     25.00
   65         62          0        4     CHANNEL       15.0     3960.     .0088     3.0   3.0     .050      4.00     0
                                           OVERFLOW    50.0     3762.     .0093     3.0   3.0     .060     25.00
   62         42          0        1     CHANNEL       12.0     1400.     .2629     5.0   5.0     .070     20.00     0
   69         68          0        1     CHANNEL       10.0     3740.     .1056     6.0   6.0     .055     15.00     0
   70         68          0        1     CHANNEL       12.0     6960.     .0912     6.0   6.0     .055     15.00     0
   68         42          0        1     CHANNEL       12.0     2120.     .1203     5.0   5.0     .060     15.00     0
   41         40          0        1     CHANNEL       12.0     3100.     .2423     5.0   5.0     .060     20.00     0
   42         40          0        4     CHANNEL       20.0     7580.     .0500     3.0   3.0     .055      4.00     0
                                           OVERFLOW    50.0     7580.     .0500     2.0   2.0     .060     25.00
   40         16          0        4     CHANNEL       20.0     3000.     .0330     3.0   3.0     .055      4.00     0
                                           OVERFLOW    50.0     3000.     .0330     2.0   2.0     .060     25.00
   20         18          0        1     CHANNEL       10.0     5340.     .0534     8.0   8.0     .050     15.00     0
   18         17          0        4     CHANNEL       11.0     7600.     .0605     3.0   3.0     .050      3.00     0
                                           OVERFLOW    40.0     7220.     .0637     5.0   5.0     .055     20.00
   21         17          0        1     CHANNEL       10.0     6960.     .1042     5.0   5.0     .060     15.00     0
   17         16          0        4     CHANNEL       11.0     1000.     .0493    10.0  10.0     .040      3.00     0
                                           OVERFLOW    40.0     1000.     .0493     8.0   8.0     .055     20.00
   14         15          0        1     CHANNEL       15.0     3080.     .2662     3.0   3.0     .060     15.00     0
   15          8          0        3                     .0        1.     .0010      .0    .0     .001     10.00     0
   16         15          0        3                     .0        1.     .0010      .0    .0     .001     10.00     0
    8        397          0        3                     .0        1.     .0010      .0    .0     .001     10.00     0
  397          6         14        2     PIPE            .1        1.     .0050      .0    .0     .013       .10     0
                         RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                                 .0       .0     207.0   170.0     415.0   476.0      833.0  1330.0     1254.0  2417.0     1677.0  3678 0
                             2104.0   5078.0    2535.0  6591.0    2968.0  8200.0     3405.0  9896.0     3847.0 12853.0     4292.0 16870.0
                             6098.0  37861.0    7880.0 91713.0
   38         37          0        1     CHANNEL       12.0     5060.     .1146    15.0  15.0     .050     15.00     0
   39         37          0        1     CHANNEL       10.0     5140.     .0807    10.0  10.0     .050     20.00     0
   37         23          0        4     CHANNEL       11.0     8160.     .0386     4.0   4.0     .050      3.00     0
                                           OVERFLOW    60.0     7752.     .0406    25.0  25.0     .055     20.00
   35         34          0        1     CHANNEL       10.0     3140.     .0930    10.0  10.0     .050     15.00     0
   36         34          0        1     CHANNEL       12.0     5340.     .0549    15.0  15.0     .050     15.00     0
   34         23          0        4     CHANNEL       11.0     6840.     .0450     4.0   4.0     .050      3.00     0
                                           OVERFLOW    50.0     6498.     .0474    25.0  25.0     .055     20.00
   32         31          0        1     CHANNEL        8.0     3260.     .0883     8.0   8.0     .055     15.00     0
   33         31          0        1     CHANNEL        8.0     5180.     .0788     8.0   8.0     .055     15.00     0
   31         23          0        1     CHANNEL       12.0     2720.     .0393    10.0  10.0     .055     15.00     0
   23         22          0        4     CHANNEL       11.0     4920.     .0315     3.0   3.0     .050      3.00     0
                                           OVERFLOW    50.0     4674.     .0332    10.0  10.0     .055     20.00
   29         28          0        1     CHANNEL        5.0     3060.     .1471     6.0   6.0     .055     15.00     0
   30         28          0        1     CHANNEL       12.0     5780.     .0484    15.0  15.0     .050     15.00     0
   27         26          0        1     CHANNEL       10.0     2540.     .1693    10.0  10.0     .040     15.00     0
   28         26          0        4     CHANNEL       11.0     2520.     .0595    10.0  10.0     .040      3.00     0
                                           OVERFLOW    80.0     2394.     .0626    25.0  25.0     .045     15.00
   25         24          0        1     CHANNEL        6.0     5920.     .1309     8.0   8.0     .050     15.00     0
   26         24          0        4     CHANNEL       12.0     1860.     .0242     4.0   4.0     .050      3.00     0
                                           OVERFLOW    80.0     1767.     .0255    10.0  10.0     .055     15.00
   24         22          0        4     CHANNEL       12.0     1740.     .0287     4.0   4.0     .050      3.00     0
                                           OVERFLOW   100.0     1653.     .0302    10.0  10.0     .055     20.00
   22          8          0        4     CHANNEL       11.0     3600.     .0658     3.0   3.0     .050      3.00     0
                                           OVERFLOW    40.0     3600.     .0658     6.0   6.0     .055     20.00
    9          7          0        4     CHANNEL        3.0    10320.     .1556     3.0   3.0     .060      2.00     0
                                           OVERFLOW    20.0     9804.     .1638     2.0   2.0     .080     25.00
   10          7          0        1     CHANNEL       15.0     3760.     .1293     3.0   3.0     .040     15.00     0
    7          5          0        4     CHANNEL        5.0     4940.     .0656     2.0   2.0     .060      2.50     0
                                           OVERFLOW    25.0     4693.     .0691     2.0   2.0     .080     20.00
    3          2          0        1     CHANNEL       25.0    11000.     .0682     4.0   4.0     .040     15.00     0
    4          2          0        1     CHANNEL       25.0    12780.     .1033     4.0   4.0     .040     15.00     0
    2          1          0        4     CHANNEL        8.0     7240.     .0631     2.0   2.0     .070      3.00     0
                                           OVERFLOW    30.0     6878.     .0664     2.0   2.0     .080     20.00
    6          5          0        4     CHANNEL       35.0     4840.     .0340     2.0   2.0     .055      4.00     0
                                           OVERFLOW    60.0     4840.     .0340     2.0   2.0     .065     25.00
    5          1          0        4     CHANNEL       30.0     4960.     .0240     2.0   2.0     .055      4.00     0
                                           OVERFLOW    55.0     4960.     .0240     2.0   2.0     .065     25.00
    1        245          0        4     CHANNEL       30.0    10240.     .0240     2.0   2.0     .055      4.00     0
                                           OVERFLOW    55.0    10240.     .0240     2.0   2.0     .065     25.00
   11         13          0        1     CHANNEL       12.0     3000.     .1200     3.0   3.0     .040     15.00     0
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    12        13          0         1   CHANNEL       12.0     4180.     .1340     3.0   3.0       .040      15.00         0
    13         5          0         4   CHANNEL       15.0     5240.     .1202     4.0   4.0       .040       5.00         0
                                          OVERFLOW   100.0     4978.     .1265    40.0  40.0       .045      20.00
   248       250          0         4   CHANNEL       25.0     9340.     .0931     4.0   4.0       .060       5.00         0
                                          OVERFLOW   100.0     8873.     .0980    40.0  40.0       .080      20.00
   249       250          0         4   CHANNEL       20.0     3940.     .0964     4.0   4.0       .060       5.00         0
                                          OVERFLOW    80.0     3743.     .1015    40.0  40.0       .080      20.00
   247       246          0         4   CHANNEL       25.0     8120.     .0924     4.0   4.0       .060       5.00         0
                                          OVERFLOW   100.0     7714.     .0973    40.0  40.0       .080      20.00
   250       246          0         4   CHANNEL       25.0     2060.     .0485     4.0   4.0       .060       5.00         0
                                          OVERFLOW   100.0     1957.     .0511    40.0  40.0       .080      20.00
   246       245          0         4   CHANNEL       25.0     4660.     .0676     4.0   4.0       .060       5.00         0
                                          OVERFLOW   100.0     4427.     .0712    40.0  40.0       .080      20.00
   244        52          0         4   CHANNEL       25.0     8700.     .0989     4.0   4.0       .070       5.00         0
                                          OVERFLOW   100.0     8265.     .1041    40.0  40.0       .080      20.00
   245        52          0         4   CHANNEL       30.0     3060.     .0300     3.0   3.0       .070       4.00         0
                                          OVERFLOW    60.0     3060.     .0300     2.0   2.0       .080      20.00
    54        53          0         1   CHANNEL        5.0     4000.     .1500     3.0   3.0       .060      15.00         0
    55        53          0         1   CHANNEL        5.0     5500.     .1382     3.0   3.0       .060      15.00         0
    53        52          0         1   CHANNEL        5.0     1200.     .1083     3.0   3.0       .060      15.00         0
    51        50          0         4   CHANNEL        5.0     5200.     .1327     4.0   4.0       .060       5.00         0
                                          OVERFLOW   100.0     4940.     .1397    40.0  40.0       .080      20.00
    52        50          0         4   CHANNEL       35.0     9160.     .0218     3.0   3.0       .055       4.00         0
                                          OVERFLOW    65.0     9160.     .0218     2.0   2.0       .065      25.00
    50        48          0         4   CHANNEL       40.0     3400.     .0294     5.0   5.0       .060       4.00         0
                                          OVERFLOW   150.0     3400.     .0294    75.0  75.0       .080      25.00
    57        56          0         4   CHANNEL       25.0     8400.     .1262     4.0   4.0       .060       5.00         0
                                          OVERFLOW   100.0     7980.     .1328    40.0  40.0       .080      20.00
    58        56          0         1   CHANNEL        5.0     2200.     .1636     3.0   3.0       .060      15.00         0
    56        50          0         4   CHANNEL       25.0    10000.     .0930     4.0   4.0       .070       5.00         0
                                          OVERFLOW   100.0     9500.     .0979    40.0  40.0       .080      20.00
    49        48          0         1   CHANNEL       12.0     3200.     .2594     3.0   3.0       .060       8.00         0
    48      1626          0         4   CHANNEL       30.0     4700.     .0133     2.0   2.0       .070       5.00         0
                                          OVERFLOW   200.0     4700.     .0133     2.0   2.0       .085      25.00
  1238      1927          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1927       238          0         4   CHANNEL       15.0      964.     .0012     3.5   3.5       .045       4.00         0
                                          OVERFLOW    70.0      964.     .0012     7.5   5.0       .055      20.00
  1295       295          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
   295      1296         10         2     PIPE          .1        1.     .0010      .0    .0       .030        .10         0
                     RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                            .0       .0       8.3      .5      17.8      1.0      28.1   10.5      39.4     18.2      52.5    23.5
                          68.3    278.0      86.7  1321.5     107.1   5035.0     150.0 10000.0
  1296       296          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
   296      1382          6         3                   .0        1.     .0010      .0    .0       .001      10.00      1383
                     DIVERSION TO GUTTER NUMBER1383 - TOTAL Q VS DIVERTED Q IN CFS
                            .0       .0      24.0      .1     278.0    250.0    1321.0 1290.0    5035.0   5000.0   10000.0  9964.0
  1382      1381          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
   384      1820          0         5     PIPE         3.0     4047.     .0176      .0    .0       .020       3.00         0
                                          OVERFLOW     1.0     4047.     .0176    20.0  20.0       .020      50.00
  1820       383          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1383      1820          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
   383      1405          8         3                   .0        1.     .0010      .0    .0       .001      10.00      1360
                     DIVERSION TO GUTTER NUMBER1360 - TOTAL Q VS DIVERTED Q IN CFS
                            .0       .0     150.0     1.0     223.0     23.0     285.0   75.0     426.0    201.0    1592.0  1342.0
                        3953.0   3653.0   10000.0  9680.0
  1405      1381          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1381       382          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
   382       381          0         5     PIPE         7.5     1142.     .0020      .0    .0       .015       7.50         0
                                          OVERFLOW     7.5     1142.     .0020    20.0  20.0       .015      50.00
   381      1926          4         3                   .0        1.     .0010      .0    .0       .001      10.00      1366
                     DIVERSION TO GUTTER NUMBER1366 - TOTAL Q VS DIVERTED Q IN CFS
                            .0       .0     150.0     1.0     342.0    182.0    2438.0 2050.0
   369      1821          0         4   CHANNEL         .5     1030.     .0089    12.0  12.0       .016        .50         0
                                          OVERFLOW    10.0     1030.     .0089    20.0  20.0       .020      10.00
  1926      1821          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1821       380          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
   380       379          0         1   CHANNEL        8.0      754.     .0040     1.5   1.5       .050      10.00         0
   379      1406          4         3                   .0        1.     .0010      .0    .0       .001      10.00      1367
                     DIVERSION TO GUTTER NUMBER1367 - TOTAL Q VS DIVERTED Q IN CFS
                            .0       .0     180.0      .1     629.0    354.0    3656.0 3293.0
  1406      1378          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1404      1378          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1378       378          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
   378      1925          5         3                   .0        1.     .0010      .0    .0       .001      10.00      1289
                     DIVERSION TO GUTTER NUMBER1289 - TOTAL Q VS DIVERTED Q IN CFS
                            .0       .0      90.0     1.0      95.0      5.0     363.0  253.0     528.0    390.0
  1925       377          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
   377       242          0         1   CHANNEL        8.0     2080.     .0040     1.5   1.5       .055      10.00         0
  1715      1716          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1716      1517          0         4   CHANNEL       10.0     3321.     .0032     6.0   6.0       .035        .50         0
                                          OVERFLOW    30.0     3321.     .0032    80.0  80.0       .035      15.00
  1515      1517          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1517      1522          0         4   CHANNEL        4.0      851.     .0035     8.0   8.0       .035        .50         0
                                          OVERFLOW    20.0      851.     .0035    60.0  60.0       .035      15.00
  1541      1542          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1542      1544          0         4   CHANNEL        5.0    10122.     .0260     4.0   4.0       .040       2.00         0
                                          OVERFLOW    30.0    10122.     .0260    80.0  80.0       .045      15.00
  1520      1521          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1525      1526          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1528      1428          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1428      1429          0         4   CHANNEL        4.0     1682.     .0131     2.0   2.0       .025       2.00         0
                                          OVERFLOW   400.0     1682.     .0131    40.0  40.0       .035      15.00
  1415      1416          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1550      1551          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1560      1561          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1561      1563          0         4   CHANNEL        3.0     2480.     .1940     4.0   4.0       .050       2.00         0
                                          OVERFLOW    25.0     2480.     .1940    50.0  50.0       .055      15.00
  1565      1566          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
  1566      1563          0         4   CHANNEL        3.0     2240.     .2140     4.0   4.0       .050       2.00         0
                                          OVERFLOW    25.0     2240.     .2140     6.0   6.0       .055      15.00
  1563      1551          0         3                   .0        1.     .0010      .0    .0       .001      10.00         0
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 1551       1553          0         4     CHANNEL          3.0     8900.     .0560      5.0   5.0        .040        2.00        0
                                            OVERFLOW      30.0     8900.     .0560     50.0  50.0        .045       10.00
 1570       1571          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1571       1557          0         1     CHANNEL          5.0     1200.     .2670     40.0  40.0        .055       10.00        0
 1556       1557          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1557       1553          0         4     CHANNEL          3.0     5620.     .0240      5.0   5.0        .040        2.00        0
                                            OVERFLOW      25.0     5620.     .0240     40.0  40.0        .045       15.00
 1553       1416          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1416       1429          0         4     CHANNEL          5.0     4085.     .0225      4.0   4.0        .050        2.00        0
                                            OVERFLOW      25.0     4085.     .0225     40.0  40.0        .055       15.00
 1429       1526          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1526       1532          0         4     CHANNEL          2.0     1410.     .0136      2.0   2.0        .055        2.00        0
                                            OVERFLOW     400.0     1410.     .0136     40.0  40.0        .065       15.00
 1530       1531          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1545       1546          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1575       1576          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1576       1546          0         4     CHANNEL          2.0     3500.     .0229      5.0   5.0        .050        2.00        0
                                            OVERFLOW      30.0     3500.     .0229     50.0  50.0        .055       15.00
 1546       1531          0         4     CHANNEL          5.0     7763.     .0840      4.0   4.0        .050        2.00        0
                                            OVERFLOW      30.0     7763.     .0840     75.0  75.0        .055       15.00
 1531       1532          0         4     CHANNEL          5.0     5288.     .0872      4.0   4.0        .040        2.00        0
                                            OVERFLOW      30.0     5288.     .0872     80.0  80.0        .045       15.00
 1532       1537          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1537       1533          0         4     CHANNEL          2.0     1127.     .0035      2.0   2.0        .035        2.00        0
                                            OVERFLOW     400.0     1127.     .0035      5.0  40.0        .035       15.00
 1414       1534          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1534       1533          0         4     CHANNEL         10.0     1966.     .0080      5.0   5.0        .050        1.00        0
                                            OVERFLOW     400.0     1966.     .0080     50.0   3.0        .065       15.00
 1533       1521          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1521       1544          0         4     CHANNEL          4.0     2633.     .0093      2.0   2.0        .050        2.00        0
                                            OVERFLOW     500.0     2633.     .0093     25.0  25.0        .065       10.00
 1544       1548          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1548       1522          0         4     CHANNEL          4.0     1054.     .0038      8.0   8.0        .035         .50        0
                                            OVERFLOW     500.0     1054.     .0038     60.0  60.0        .035       15.00
 1522       1511          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1510       1511          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1511       1513          0         4     CHANNEL          4.0     3213.     .0057      2.0   2.0        .050        2.00        0
                                            OVERFLOW     512.0     3213.     .0057     50.0  50.0        .060       10.00
 1513       1514          8         3                       .0        1.     .0010       .0    .0        .001       10.00     1508
                        DIVERSION TO GUTTER NUMBER1508 - TOTAL Q VS DIVERTED Q IN CFS
                             .0      .0      50.0      .1     140.0    48.0     415.0   192.0    1791.0  1299.0    3930.0  3176.0
                         7762.0  6551.0   15011.0 13210.0
 1514       1442          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1442       1935          0         4     CHANNEL          2.0     2252.     .0097      4.0   4.0        .040        1.00        0
                                            OVERFLOW     300.0     2252.     .0097     80.0  80.0        .060       15.00
 1262       1916          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1916       1935          0         4     CHANNEL          2.0     1211.     .0046      5.0   3.0        .035        1.00        0
                                            OVERFLOW     400.0     1211.     .0046    100.0   3.0        .035       20.00
 1935        262          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
  262        263          0         4     CHANNEL          2.0      529.     .0058      5.0   3.0        .035        1.00        0
                                            OVERFLOW     500.0      529.     .0058    150.0   3.0        .035       20.00
  263       1905          8         3                       .0        1.     .0010       .0    .0        .001       10.00      266
                        DIVERSION TO GUTTER NUMBER 266 - TOTAL Q VS DIVERTED Q IN CFS
                             .0      .0     175.0   174.9     412.0   185.0     908.0   198.0    1902.0   212.0    3161.0   228.0
                         6477.0   233.0   13854.0   256.0
 1905        264          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
  264        265          0         4     CHANNEL          2.0     1138.     .0017      5.0   3.0        .035         .50        0
                                            OVERFLOW     600.0     1138.     .0017    150.0   3.0        .035       20.00
  265        269          8         3                       .0        1.     .0010       .0    .0        .001       10.00     1267
                        DIVERSION TO GUTTER NUMBER1267 - TOTAL Q VS DIVERTED Q IN CFS
                             .0      .0     170.0   169.9     227.0   195.0     710.0   516.0    1689.0  1249.0    2933.0  1956.0
                         6244.0  3358.0   13598.0  6585.0
  269       1294          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1294        294          0         4     CHANNEL          2.0     1043.     .0027      4.0   4.0        .025        1.00        0
                                            OVERFLOW     375.0     1043.     .0027     80.0   3.0        .035       15.00
  304        294          0         1     CHANNEL          8.0     2370.     .0060      5.0   5.0        .035       10.00        0
  299        303          0         4     CHANNEL           .5     3612.     .0400     12.0  12.0        .016         .50        0
                                            OVERFLOW      24.0     3612.     .0400     20.0  20.0        .020       10.00
  301        300          0         4     CHANNEL           .5     3743.     .0800     12.0  12.0        .016         .50        0
                                            OVERFLOW      24.0     3743.     .0800     20.0  20.0        .020       10.00
  300       1922          5         2     PIPE              .1        1.     .0010       .0    .0        .030         .10        0
                        RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                             .0      .0       5.4    10.0      28.7    11.0      36.6    32.0      39.3   468.0
 1922        303          0         4     CHANNEL           .5      899.     .0667     12.0  12.0        .016         .50        0
                                            OVERFLOW      10.0      899.     .0667     20.0  20.0        .020       10.00
  303        298          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
  298        297         11         2     PIPE              .1        1.     .0010       .0    .0        .030         .10        0
                        RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                             .0      .0        .1    15.0        .5    45.0       1.4    94.0       2.9   130.0       5.3   158.0
                            9.3   182.0      12.2   192.0      15.9   225.0      20.4   286.0      25.0   827.0
  297       1921          0         4     CHANNEL          6.0     5106.     .0250      3.0   3.0        .045        6.00        0
                                            OVERFLOW      50.0     6800.     .0188      3.0   3.0        .035       10.00
 1917       1921          0         4     CHANNEL          5.0     1894.     .0079      8.0   8.0        .035        1.00        0
                                            OVERFLOW      40.0     1894.     .0079     80.0  80.0        .035       15.00
 1921       1920          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
 1920        294          0         4     CHANNEL         18.0      785.     .0013      6.0   6.0        .035        6.00        0
                                            OVERFLOW     100.0      785.     .0013     12.0  12.0        .035       15.00
  294        280          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
  280       1293          6         3                       .0        1.     .0010       .0    .0        .001       10.00     1295
                        DIVERSION TO GUTTER NUMBER1295 - TOTAL Q VS DIVERTED Q IN CFS
                             .0      .0     295.0     1.0     370.0    42.0    1046.0   661.0    2827.0  2327.0    8734.0  8169.0
 1293        293          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
  293        267          0         5     PIPE             8.5      757.     .0020       .0    .0        .015        8.50        0
                                            OVERFLOW       8.5      757.     .0020       .0    .0        .015       20.00
 1267        267          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
  267        268          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
  268       1291          8         2     PIPE              .1        1.     .0010       .0    .0        .030         .10        0
                        RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                             .0      .0       1.4    81.0       5.0   267.0      10.4   465.0      16.9   632.0      25.0  1145.0
                           35.1  1888.0     140.0 10000.0
 1291        291          0         3                       .0        1.     .0010       .0    .0        .001       10.00        0
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   291      1290         6         3                   .0       1.   .0010      .0    .0      .001      10.00     1923
                    DIVERSION TO GUTTER NUMBER1923 - TOTAL Q VS DIVERTED Q IN CFS
                      .0       .0     515.0       1.0    1249.0    471.0    1956.0  1098.0     6585.0   5685.0    10000.0  9000.0
  1290       290         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
   290      1924         0         4   CHANNEL       30.0    1375.   .0017     4.0   4.0      .045       6.00        0
                                        OVERFLOW    100.0    1375.   .0017    20.0  20.0      .050      15.00
  1289      1924         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1924       289         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
   289       242         0         4   CHANNEL       30.0    1962.   .0017     4.0   4.0      .045       6.00        0
                                        OVERFLOW    100.0    1962.   .0017    20.0  20.0      .050      15.00
  1505      1506         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1410      1411         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1420      1421         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1435      1436         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1436      1438         0         4   CHANNEL        2.0    3730.   .0350     4.0   4.0      .050       3.00        0
                                        OVERFLOW     30.0    3730.   .0350    16.0  16.0      .055      15.00
  1430      1431         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1431      1438         0         4   CHANNEL        2.0    1670.   .0820     4.0   4.0      .040       1.00        0
                                        OVERFLOW     12.0    1670.   .0820    15.0  15.0      .045      15.00
  1438      1426         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1425      1426         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1426      1421         0         4   CHANNEL        5.0    2319.   .0190     8.0   8.0      .040       2.00        0
                                        OVERFLOW     40.0    2319.   .0190    75.0  75.0      .045      15.00
  1445      1446         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1446      1453         0         4   CHANNEL        2.0    6667.   .0606     3.0   3.0      .040       3.00        0
                                        OVERFLOW     25.0    6667.   .0606     6.0   6.0      .045      15.00
  1645      1646         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1646      1643         0         4   CHANNEL        5.0    5300.   .1450     4.0   4.0      .060       2.00        0
                                        OVERFLOW     25.0    5300.   .1450    15.0  15.0      .065      15.00
  1640      1641         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1641      1643         0         4   CHANNEL        2.0    5800.   .0160     3.0   3.0      .060       3.00        0
                                        OVERFLOW     25.0    5800.   .0160     8.0   8.0      .065      15.00
  1643      1631         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1630      1631         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1631      1628         0         4   CHANNEL       10.0    7611.   .0730     4.0   4.0      .040       3.00        0
                                        OVERFLOW     40.0    7611.   .0730    10.0  10.0      .045      15.00
  1625      1626         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1635      1636         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1636      1626         0         1   CHANNEL        2.0    4200.   .0840     8.0   8.0      .040      10.00        0
  1626      1628         0         4   CHANNEL       25.0    1908.   .0205     4.0   4.0      .070       2.00        0
                                        OVERFLOW    100.0    1908.   .0205    75.0  75.0      .075      15.00
  1628      1611         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1610      1611         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1611      1928         0         4   CHANNEL       30.0    4400.   .0290     4.0   4.0      .060       2.50        0
                                        OVERFLOW    150.0    4400.   .0290    75.0  75.0      .070      15.00
  1605      1606         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1665      1666         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1666      1606         0         4   CHANNEL        3.0    6900.   .2130     3.0   3.0      .050       2.00        0
                                        OVERFLOW     20.0    6900.   .2130     2.0   2.0      .055      10.00
  1606      1928         0         4   CHANNEL        5.0    5987.   .0812     4.0   4.0      .045       2.00        0
                                        OVERFLOW     25.0    5987.   .0812     3.0   3.0      .060      15.00
  1928      1601         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1600      1601         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1601      1603         0         4   CHANNEL       25.0    1264.   .0290     6.0   6.0      .060       2.50        0
                                        OVERFLOW     85.0    1264.   .0290    80.0  80.0      .070      15.00
  1710      1711         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1711      1712         0         4   CHANNEL        5.0    5430.   .0479     4.0   4.0      .035       1.00        0
                                        OVERFLOW     30.0    5430.   .0479     5.0   5.0      .035      15.00
  1615      1616         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1616      1623         0         4   CHANNEL        2.0    6409.   .0620     3.0   3.0      .040       3.00        0
                                        OVERFLOW     20.0    6409.   .0620     5.0   5.0      .045      15.00
  1660      1661         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1661      1651         0         4   CHANNEL        3.0    9600.   .1670     4.0   4.0      .060       3.00        0
                                        OVERFLOW     25.0    9600.   .1670     3.0   3.0      .065      15.00
  1650      1651         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1651      1653         0         4   CHANNEL        5.0    4100.   .0860     4.0   4.0      .050       3.00        0
                                        OVERFLOW     25.0    4100.   .0860     3.0   3.0      .055      15.00
  1655      1656         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1656      1653         0         4   CHANNEL        3.0   10800.   .1170     4.0   4.0      .050       3.00        0
                                        OVERFLOW     25.0   10800.   .1170     3.0   3.0      .055      15.00
  1653      1621         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1620      1621         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1621      1623         0         4   CHANNEL        5.0   10100.   .0320     5.0   5.0      .045       3.00        0
                                        OVERFLOW     35.0   10100.   .0320     2.0   2.0      .060      15.00
  1623      1624         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1705      1624         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1624      1712         0         4   CHANNEL        2.0    2490.   .0380     5.0   5.0      .050       2.00        0
                                        OVERFLOW     25.0    2490.   .0380     5.0   5.0      .050      10.00
  1712      1929         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1929      1603         0         4   CHANNEL       10.0    1172.   .0043    10.0  10.0      .035        .50        0
                                        OVERFLOW     20.0    1172.   .0043    40.0  40.0      .035      15.00
  1603      1451         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1450      1451         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1451      1453         0         4   CHANNEL       30.0    2963.   .0110     6.0   6.0      .060       2.50        0
                                        OVERFLOW    110.0    2963.   .0110    80.0  80.0      .070      15.00
  1453      1441         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1440      1441         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1441      1421         0         4   CHANNEL       30.0    3235.   .0078     4.0   4.0      .060       2.50        0
                                        OVERFLOW    110.0    3235.   .0078    75.0  75.0      .070      15.00
  1421      1423         0         4   CHANNEL       30.0     800.   .0120     4.0   4.0      .060       2.50        0
                                        OVERFLOW    120.0     800.   .0120    75.0  75.0      .090      15.00
  1423      1424         8         3                   .0       1.   .0010      .0    .0      .001      10.00     1528
                    DIVERSION TO GUTTER NUMBER1528 - TOTAL Q VS DIVERTED Q IN CFS
                      .0       .0    1000.0       1.0    2000.0    114.0    3100.0   335.0     4000.0    597.0     5683.0  1262.0
                     10000.0  2575.0   18600.0  5243.0
  1424      1411         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1411      1412         0         4   CHANNEL       30.0    3369.   .0084     4.0   4.0      .060       2.50        0
                                        OVERFLOW    160.0    3369.   .0084    75.0  75.0      .065      15.00
  1412      1413         0         3                   .0       1.   .0010      .0    .0      .001      10.00        0
  1413      1509         9         3                   .0       1.   .0010      .0    .0      .001      10.00     1414
                    DIVERSION TO GUTTER NUMBER1414 - TOTAL Q VS DIVERTED Q IN CFS
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                         .0       .0     500.0     1.0      999.0   125.0    1886.0   841.0    2765.0  1456.0    3403.0  1937.0
                     4421.0   2668.0    7425.0  5187.0    13357.0 10368.0
  1509      1800        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1490      1491        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1455      1456        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1938      1480        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1480      1481        0       4    CHANNEL             5.0     2400.     .0500     2.0   2.0      .040       2.00        0
                                       OVERFLOW         20.0     2400.     .0500    10.0  10.0      .045      10.00
  1481      1482        7       2    PIPE                 .0        1.     .0010      .0    .0      .030        .10        0
                    RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                         .0       .0     308.0    18.0      624.0    76.0     947.0   179.0    1279.0   318.0    1618.0  1676.0
                     1965.0   4700.0
  1482      1456        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1456      1457        0       1    CHANNEL             2.0     4450.     .0363    80.0  80.0      .030      20.00        0
  1457      1491        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1491      1931        0       4    CHANNEL             5.0    10236.     .0090     4.0   4.0      .050       2.00        0
                                       OVERFLOW         25.0    10236.     .0090    60.0  60.0      .065      15.00
  1460      1461        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1461      1931        0       4    CHANNEL             3.0     2286.     .0280     4.0   4.0      .050       2.00        0
                                       OVERFLOW         20.0     2286.     .0280    24.0  24.0      .055      15.00
  1931      1933        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1933      1467        0       4    CHANNEL             5.0      403.     .0099     2.0   2.0      .020       2.00        0
                                       OVERFLOW         25.0      403.     .0099    10.0  10.0      .025      15.00
  1465      1932        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1932      1467        0       4    CHANNEL             4.0     1591.     .0289     8.0   8.0      .035        .50        0
                                       OVERFLOW         25.0     1591.     .0289     4.0   4.0      .035      15.00
  1467      1468        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1468      1800        0       4    CHANNEL             5.0     2357.     .0180     2.0   2.0      .020       2.00        0
                                       OVERFLOW         25.0     2357.     .0180    10.0  10.0      .025      15.00
  1800      1506        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1506      1507        0       4    CHANNEL            33.0     8099.     .0054     4.0   4.0      .060       2.50        0
                                       OVERFLOW        800.0     8099.     .0054    10.0  10.0      .065      15.00
  1508      1507        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1507      1512        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1512        44        0       4    CHANNEL            33.0     1367.     .0064     4.0   4.0      .060       2.50        0
                                       OVERFLOW        308.0     1367.     .0064    80.0  80.0      .065      15.00
  1500      1501        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1501        44        0       4    CHANNEL             5.0     8609.     .0212     2.0   2.0      .040       2.00        0
                                       OVERFLOW         20.0     8609.     .0212    10.0  10.0      .045      15.00
    44       261        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   261      1427        9       3                         .0        1.     .0010      .0    .0      .001      10.00     1262
                    DIVERSION TO GUTTER NUMBER1262 - TOTAL Q VS DIVERTED Q IN CFS
                         .0       .0     500.0     1.0      875.0    35.0    1920.0   315.0    2709.0   660.0    3916.0  1323.0
                     5586.0   2377.0    9768.0  5344.0    18394.0 11928.0
  1427       243        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   243       242        0       4    CHANNEL            65.0     2991.     .0112     2.0   2.0      .043       2.50        0
                                       OVERFLOW        650.0     2991.     .0112   100.0 100.0      .055      15.00
   242       241        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   241       240        0       4    CHANNEL            65.0     5732.     .0100     2.0   2.0      .043       3.00        0
                                       OVERFLOW       1200.0     5732.     .0100   200.0 200.0      .055      20.00
   240       238        0       4    CHANNEL            65.0     2861.     .0100     2.0   2.0      .050       3.00        0
                                       OVERFLOW       1200.0     2861.     .0100   200.0 200.0      .075      20.00
   238       237        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   237       251        5       3                         .0        1.     .0010      .0    .0      .001      10.00      389
                    DIVERSION TO GUTTER NUMBER 389 - TOTAL Q VS DIVERTED Q IN CFS
                         .0       .0    2060.0     1.0     4980.0  2580.0    6630.0  3530.0   11150.0  7500.0
   389      1906        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1906      1909        0       4    CHANNEL            10.0     3340.     .0042     8.0   8.0      .025        .50        0
                                       OVERFLOW       1200.0     3340.     .0042    80.0  80.0      .025      15.00
   251       233        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   235       239        0       1    CHANNEL             1.0     3509.     .0050    50.0  50.0      .020      10.00        0
   239       234        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   234       232        0       4    CHANNEL             2.0     2072.     .0044     3.0   3.0      .050       2.00        0
                                       OVERFLOW         50.0     2072.     .0044    50.0  50.0      .035      10.00
   233       232        0       4    CHANNEL            65.0     3076.     .0100     2.0   2.0      .050       4.00        0
                                       OVERFLOW        600.0     3076.     .0100   200.0 200.0      .080      20.00
   232       236        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   236       252        5       3                         .0        1.     .0010      .0    .0      .001      10.00     1403
                    DIVERSION TO GUTTER NUMBER1403 - TOTAL Q VS DIVERTED Q IN CFS
                         .0       .0    2060.0     1.0     2400.0   100.0    3100.0   500.0   10000.0  2500.0
  1403      1599        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   252       231        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1357       357        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   357      1401        6       3                         .0        1.     .0010      .0    .0      .001      10.00     1325
                    DIVERSION TO GUTTER NUMBER1325 - TOTAL Q VS DIVERTED Q IN CFS
                         .0       .0      26.0      .1      263.0   235.0     391.0   361.0     995.0   960.0    5000.0  4950.0
  1401      1387        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1387       387        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   387      1908        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1908      1320        0       4    CHANNEL             2.0     1718.     .0076     3.0   3.0      .025       2.00        0
                                       OVERFLOW        600.0     1718.     .0076    80.0  80.0      .025      10.00
   266       376        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   376       375        0       1    CHANNEL             4.0     1569.     .0041     4.0   4.0      .050      10.00        0
   375      1374        4       3                         .0        1.     .0010      .0    .0      .001      10.00     1404
                    DIVERSION TO GUTTER NUMBER1404 - TOTAL Q VS DIVERTED Q IN CFS
                         .0       .0      24.0      .1      135.0   100.0     540.0   500.0
  1374       374        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   374       372        0       4    CHANNEL             4.0     2538.     .0115     3.0   3.0      .045       2.00        0
                                       OVERFLOW         20.0     2538.     .0115    20.0  20.0      .035      10.00
   373       372        0       4    CHANNEL             3.0     1779.     .0075     4.0   4.0      .045       1.00        0
                                       OVERFLOW         20.0     1779.     .0075    20.0  20.0      .035      10.00
  1367       367        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   367       372        0       4    CHANNEL              .5     2663.     .0103    12.0  12.0      .016        .50        0
                                       OVERFLOW         10.0     2663.     .0103    20.0  20.0      .020      10.00
   372       371        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   371       311        0       4    CHANNEL            10.0     2893.     .0078     2.0   2.0      .045       1.00        0
                                       OVERFLOW         10.0     2893.     .0078    50.0  50.0      .035      10.00
  1339      1822        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
  1348       348        0       3                         .0        1.     .0010      .0    .0      .001      10.00        0
   348      1937        5       3                         .0        1.     .0010      .0    .0      .001      10.00     1331
                    DIVERSION TO GUTTER NUMBER1331 - TOTAL Q VS DIVERTED Q IN CFS
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                     .0      .0      31.0    30.0     542.0   335.0     795.0  466.0    1394.0   766.0
  1937      1386     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   385      1386     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1386       386     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   386       395     6        3                         .0       1.     .0010     .0     .0        .001      10.00     1407
                 DIVERSION TO GUTTER NUMBER1407 - TOTAL Q VS DIVERTED Q IN CFS
                     .0      .0     206.0     1.0     394.0    64.0     902.0  273.0    2616.0   572.0    5000.0  1100.0
   395       394     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   394      1822     0        4      CHANNEL            .5    1000.     .0061   12.0   12.0        .016        .50        0
                                       OVERFLOW       10.0    1000.     .0061   20.0   20.0        .020      10.00
  1822       339     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   339      1313     4        3                         .0       1.     .0010   ·  .0     .0        .001      10.00     1336
                 DIVERSION TO GUTTER NUMBER1336 - TOTAL Q VS DIVERTED Q IN CFS
                     .0      .0      30.0    20.0     300.0   200.0    3000.0 2000.0
  1313      1939     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1362       362     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   363       362     0        1      CHANNEL           1.0    4078.     .0121   20.0    5.0        .020      10.00        0
   362       398     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   398      1396    10        2      PIPE               .1       1.     .0010     .0     .0        .030        .10        0
                 RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                     .0      .0        .4    26.0       1.3   138.0       2.1  200.0       2.4   260.0       2.8   360.0
                    3.4   510.0       4.0   893.0       5.0  1809.0      15.0 10000.0
  1396       396     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   396       308     7        3                         .0       1.     .0010     .0     .0        .001      10.00      385
                 DIVERSION TO GUTTER NUMBER 385 - TOTAL Q VS DIVERTED Q IN CFS
                     .0      .0     260.0      .1     360.0    60.0     510.0  190.0     893.0   545.0    1809.0  1388.0
                 10000.0  9550.0
   308       314     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   314      1939     0        1      CHANNEL           8.0     600.     .0048     .1    2.0        .050      15.00        0
  1939       313     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   313      1910     6        3                         .0       1.     .0010     .0     .0        .001      10.00     1409
                 DIVERSION TO GUTTER NUMBER1409 - TOTAL Q VS DIVERTED Q IN CFS
                     .0      .0     260.0      .1     389.0   129.0     470.0  195.0     648.0   358.0   10000.0  9500.0
  1910      1940     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1366       366     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   366       344     0        4      CHANNEL            .5    5533.     .0079   12.0   12.0        .016        .50        0
                                       OVERFLOW       10.0    5533.     .0079   20.0   20.0        .020      10.00
   344      1408     4        3                         .0       1.     .0010     .0     .0        .001      10.00     1339
                 DIVERSION TO GUTTER NUMBER1339 - TOTAL Q VS DIVERTED Q IN CFS
                     .0      .0      25.0      .1      50.0    25.0    2000.0   35.0
  1408      1940     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1940       312     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   312       311     0        1      CHANNEL           8.0    1520.     .0068    2.0    2.0        .050      10.00        0
   311       358     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   358       393     0        4      CHANNEL           8.0    2401.     .0100    1.5    1.5        .030       4.50        0
                                       OVERFLOW       20.0    2401.     .0100   50.0   50.0        .020      10.00
   393      1357     8        3                         .0       1.     .0010     .0     .0        .001      10.00     1393
                 DIVERSION TO GUTTER NUMBER1393 - TOTAL Q VS DIVERTED Q IN CFS
                     .0      .0     240.0     1.0     588.0    79.0     874.0  150.0    1822.0   391.0    2281.0   509.0
                  3048.0   704.0    4515.0  1075.0
  1393      1941     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1941       392     0        4      CHANNEL           4.0     423.     .0142    4.0    4.0        .030        .50        0
                                       OVERFLOW       30.0     423.     .0142   12.0   12.0        .032      15.00
  1325       325     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1331       331     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1407       331     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   331       337     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   337       328     0        4      CHANNEL            .5    2862.     .0066   12.0   12.0        .016        .50        0
                                       OVERFLOW       10.0    2862.     .0066   20.0   20.0        .020      10.00
  1329       328     0        4      CHANNEL            .5    2288.     .0088   12.0   12.0        .016        .50        0
                                       OVERFLOW       10.0    2288.     .0088   20.0   20.0        .020      10.00
  1340       340     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   340      1333     6        3                         .0       1.     .0010     .0     .0        .001      10.00     1348
                 DIVERSION TO GUTTER NUMBER1348 - TOTAL Q VS DIVERTED Q IN CFS
                     .0      .0      66.0    31.0     833.0   542.0    1194.0  795.0    2037.0  1394.0    3730.0  2560.0
  1333       333     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   333       332     0        1      CHANNEL           1.0    2969.     .0047   50.0    5.0        .020      20.00        0
   341      1334     6        3                         .0       1.     .0010     .0     .0        .001      10.00     1340
                 DIVERSION TO GUTTER NUMBER1340 - TOTAL Q VS DIVERTED Q IN CFS
                     .0      .0      71.0    66.0    1120.0   833.0    1616.0 1194.0    2776.0  2037.0    5110.0  3730.0
  1334       334     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   334       332     0        1      CHANNEL           1.0    2967.     .0047    5.0   50.0        .020      20.00        0
   332      1308     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1308      1307     4        3                         .0       1.     .0010     .0     .0        .001      10.00     1306
                 DIVERSION TO GUTTER NUMBER1306 - TOTAL Q VS DIVERTED Q IN CFS
                     .0      .0      56.2    56.1    1080.0    60.5    2500.0   65.0
  1307      1305     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1306       330     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   346       345     0        4      CHANNEL            .5    1855.     .0179   12.0   12.0        .016        .50        0
                                       OVERFLOW       10.0    1855.     .0179   20.0   20.0        .020      10.00
   345       359     0        4      CHANNEL            .5    3689.     .0097   12.0   12.0        .016        .50        0
                                       OVERFLOW       10.0    3689.     .0097   20.0   20.0        .020      10.00
   350      1915     0        5      PIPE              2.0    2980.     .0074     .0     .0        .015       2.00        0
                                       OVERFLOW        1.0    2980.     .0074   20.0   20.0        .020      20.00
  1360       360     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1923       292     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   292       360     0        4      CHANNEL           1.0    1500.     .0027   50.0   50.0        .020       1.00        0
                                       OVERFLOW       15.0    1500.     .0027    4.0    4.0        .020      10.00
   360      1934     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1934      1919     0        4      CHANNEL           1.0    1500.     .0027   50.0   50.0        .020       1.00        0
                                       OVERFLOW       15.0    1500.     .0027    4.0    4.0        .020      10.00
   353      1919     0        4      CHANNEL            .5    1591.     .0037   12.0   12.0        .016        .50        0
                                       OVERFLOW       10.0    1591.     .0037   20.0   20.0        .020      10.00
  1919       352     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
   352      1812     7        2      PIPE               .1       1.     .0010     .0     .0        .030        .10        0
                 RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                     .0      .0        .7    20.0       2.2    31.0       5.8   39.0      12.8   300.0      23.3  3986.0
                   50.0 10000.0
  1812      1813     0        3                         .0       1.     .0010     .0     .0        .001      10.00        0
  1813      1814     7        3                         .0       1.     .0010     .0     .0        .001      10.00     1815
                 DIVERSION TO GUTTER NUMBER1815 - TOTAL Q VS DIVERTED Q IN CFS
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                       .0       .0      40.0      .1      314.0     77.0    1075.0   357.0    2228.0   783.0    4144.0  1719.0
                   6379.0   2711.0
  1814       351        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   351      1913        0         5    PIPE             2.0     2056.     .0117       .0    .0       .015        2.00        0
                                         OVERFLOW      40.0     2056.     .0117      8.0   8.0       .035       15.00
  1815      1816        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1818      1817        0         4    CHANNEL          2.0      354.     .0100      4.0   4.0       .020        1.00        0
                                         OVERFLOW      12.0      354.     .0100     10.0  10.0       .030       10.00
  1816      1817        0         4    CHANNEL          6.0      837.     .0037     12.0  12.0       .015        1.00        0
                                         OVERFLOW      30.0      837.     .0037      8.0   3.0       .030       15.00
  1817       354        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   354      1913        0         5    PIPE             1.5     1345.     .2800       .0    .0       .015        1.50        0
                                         OVERFLOW      24.0     1345.     .2800     20.0   5.0       .035       15.00
  1913      1914        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1914      1915        0         5    PIPE             2.0      756.     .0066       .0    .0       .016        2.00        0
                                         OVERFLOW       1.0      756.     .0066     20.0  20.0       .020       15.00
  1915       347        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   347       359        0         5    PIPE             4.0     2229.     .0173       .0    .0       .015        4.00        0
                                         OVERFLOW      10.0     2229.     .0173     20.0  20.0       .020       20.00
   349       359        0         1    CHANNEL         10.0     2788.     .0217     20.0  20.0       .035       10.00        0
   355       359        0         5    PIPE             2.0     3762.     .0121       .0    .0       .020        2.00        0
                                         OVERFLOW       1.0     3762.     .0121      5.0  20.0       .020       10.00
   359       356        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   356      1343       10         2    PIPE              .1        1.     .0010       .0    .0       .030         .10        0
                 RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                       .0       .0        .3    14.0        3.4    138.0       5.3   200.0       6.6   210.0       7.7   233.0
                      9.7    332.0      14.5  1712.0       18.2   2617.0      23.4  5064.0
  1343       343        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   343      1342        7         3                      .0        1.     .0010       .0    .0       .001       10.00     1362
                 DIVERSION TO GUTTER NUMBER1362 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0     230.0   229.0      332.0    260.0    1712.0   360.0    2617.0   510.0    5064.0   393.0
                   9890.0   1680.0
  1342       342        0         3                      .0        1.     .0010       .0    .0       .001   .   10.00        0
   342      1335        6         3                      .0        1.     .0010       .0    .0       .001       10.00     1341
                 DIVERSION TO GUTTER NUMBER1341 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0      72.0    71.0     1352.0   1120.0    2107.0  1616.0    4171.0  2776.0    8280.0  5110.0
  1341       341        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1335       335        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   335      1301        0         1    CHANNEL         10.0     3343.     .0047     18.0   5.0       .045       20.00        0
  1301      1302        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1302      1303        4         3                      .0        1.     .0010       .0    .0       .001       10.00     1304
                 DIVERSION TO GUTTER NUMBER1304 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0     585.0     1.0     1973.0   1149.0    3964.0  2984.0
  1303       330        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1304      1305        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1305      1599        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   330       329        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   329       328        0         1    CHANNEL          8.0     1804.     .0012      3.5   3.5       .024       20.00        0
  1309      1311        6         3                      .0        1.     .0010       .0    .0       .001       10.00     1312
                 DIVERSION TO GUTTER NUMBER1312 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0     725.2      .1      824.2       .2     981.0    51.0    3918.0  1261.0    6125.0  2048.0
  1311       327        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   368      1330        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1312      1330        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1330      1332        0         5    PIPE             1.5     3079.     .0078     10.0  10.0       .025        1.50        0
                                         OVERFLOW      28.0     3079.     .0078      5.0   5.0       .040        5.00
  1332      1368        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1368      1369        3         3                      .0        1.     .0010       .0    .0       .001       10.00     1371
                 DIVERSION TO GUTTER NUMBER1371 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0     245.0      .1     3280.0    418.6
  1369      1370        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1370      1365        0         5    PIPE             1.5     1286.     .0030       .0    .0       .025        1.50        0
                                         OVERFLOW      30.0     1286.     .0030     10.0  10.0       .025       15.00
  1371      1372        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1372      1599        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   328      1309        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   327       326        0         4    CHANNEL          8.0     1305.     .0008      3.5   3.5       .024        4.00        0
                                         OVERFLOW      40.0     1305.     .0008      5.7   7.5       .028       20.00
  1409       310        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1336       336        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   336      1310        4         3                      .0        1.     .0010       .0    .0       .001       10.00     1942
                 DIVERSION TO GUTTER NUMBER1942 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0      20.0    10.0      200.0    100.0    2000.0  1000.0
  1942      1940        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1310       310        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   310       315        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   315       317        0         4    CHANNEL           .5     3664.     .0088     12.0  12.0       .016         .50        0
                                         OVERFLOW      10.0     3664.     .0088     20.0  20.0       .020       10.00
   316       317        0         4    CHANNEL ·         .5     2903.     .0079     12.0  12.0       .016         .50        0
                                         OVERFLOW      10.0     2903.     .0079     20.0  20.0       .020       10.00
   317       326        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   326       325        0         4    CHANNEL          8.0      458.     .0008      3.5   3.5       .024        4.00        0
                                         OVERFLOW      40.0      458.     .0008      5.7   7.5       .028       20.00
   325       324        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   324      1392        7         3                      .0        1.     .0010       .0    .0       .001       10.00     1402
                 DIVERSION TO GUTTER NUMBER1402 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0     725.1      .1      824.0     98.0     930.0   180.0    2657.0  1833.0    4077.0  3077.0
                  10000.0   8800.0
  1402      1323        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
  1323       323        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   323      1321        7         3                      .0        1.     .0010       .0    .0       .001       10.00     1387
                 DIVERSION TO GUTTER NUMBER1387 - TOTAL Q VS DIVERTED Q IN CFS
                       .0       .0      50.0    49.9      254.0     60.0    1565.0   100.0    2841.0   150.0    4250.0   200.0
                   8800.0    400.0
  1392       392        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   392       391        0         3                      .0        1.     .0010       .0    .0       .001       10.00        0
   391      1911        0         4    CHANNEL         15.0     1048.     .0012      3.5   3.5       .045        5.00        0
                                         OVERFLOW      55.0     1048.     .0012      4.0   7.5       .055       20.00
   338       318        0         4    CHANNEL          1.0     2263.     .0089      1.0   1.0       .045        1.00        0
                                         OVERFLOW      10.0     2263.     .0089     50.0  50.0       .035       10.00
   318      1911        0         4    CHANNEL          8.0     2821.     .0012      3.0   3.0       .045        1.50        0
```

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                                                 OVERFLOW      10.0      2821.      .0012      20.0  20.0        .035        10.00
 1911        1912          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1912         390          0         4         CHANNEL         15.0      1048.      .0012       3.5   3.5        .045         4.00          0
                                                 OVERFLOW      70.0      1048.      .0012       7.5   5.0        .055        20.00
  390        1238          7         3                           .0         1.      .0010        .0    .0        .001        10.00        388
                      DIVERSION TO GUTTER NUMBER 388 - TOTAL Q VS DIVERTED Q IN CFS
                             .0       .0     200.0     1.0      205.0      5.0      274.0      73.0      431.0    229.0      726.0   523.0
                        5000.0   4795.0
  388        1907          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1907        1320          0         4         CHANNEL          4.0      2175.      .0064       3.0   3.0        .025         2.00          0
                                                 OVERFLOW     300.0      2175.      .0064      80.0  80.0        .025        15.00
 1320         320          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
  320        1909          0         4         CHANNEL          6.0      1412.      .0087       3.0   3.0        .035         2.00          0
                                                 OVERFLOW     700.0      1412.      .0087     100.0 100.0        .035        10.00
 1909         322          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1321         321          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
  321        1337          0         1         CHANNEL         10.0      1092.      .0080      50.0  50.0        .045        15.00          0
 1337        1338          3         3                           .0         1.      .0010        .0    .0        .001        10.00       1363
                      DIVERSION TO GUTTER NUMBER1363 - TOTAL Q VS DIVERTED Q IN CFS
                             .0       .0      10.0      .1     3500.0   1910.4
 1338        1361          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1361        1320          0         5         PIPE             1.5       823.      .0100        .0    .0        .025         1.50          0
                                                 OVERFLOW      50.0       823.      .0100      20.0  20.0        .045        15.00
  361        1364          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1363        1364          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1364        1365          0         5         PIPE             1.5      1547.      .0078        .0    .0        .025         1.50          0
                                                 OVERFLOW      10.0      1547.      .0078      50.0  50.0        .045        20.00
 1365        1944          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
  370        1944          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1944        1945          0         5         PIPE             4.5      1283.      .0109        .0    .0        .025         4.50          0
                                                 OVERFLOW      10.0      1283.      .0109      50.0  50.0        .035        20.00
 1945        1373          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1373        1375          3         3                           .0         1.      .0010        .0    .0        .001        10.00       1377
                      DIVERSION TO GUTTER NUMBER1377 - TOTAL Q VS DIVERTED Q IN CFS
                             .0       .0     195.7      .1     5200.0   3965.2
 1377        1372          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1375        1376          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1376        1946          0         4         CHANNEL          8.0       750.      .0100       3.0   3.0        .045         6.00          0
                                                 OVERFLOW      50.0       750.      .0100      20.0  20.0        .050         5.00
  322        1943          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1943        1946          0         4         CHANNEL         20.0      1443.      .0083       4.0   4.0        .045         6.00          0
                                                 OVERFLOW     400.0      1443.      .0083      50.0  50.0        .060        10.00
 1946         319          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
  319         271          0         4         CHANNEL         30.0      4190.      .0086       4.0   4.0        .065         7.00          0
                                                 OVERFLOW     500.0      4190.      .0086      50.0  50.0        .060        10.00
  231         271          0         4         CHANNEL        130.0      5118.      .0074       4.0   4.0        .055         8.00          0
                                                 OVERFLOW     600.0      5118.      .0074      50.0  50.0        .050        20.00
  271         270          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
  270         399          0         4         CHANNEL         70.0      2605.      .0074       3.0   3.0        .055         8.00          0
                                                 OVERFLOW     700.0      2605.      .0074     100.0 100.0        .040        20.00
  399        1599          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1599        1947          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
 1947           0          0         3                           .0         1.      .0010        .0    .0        .001        10.00          0
OTOTAL NUMBER OF GUTTERS/PIPES, 610
1


 SBC CHANGES FROM DRAFT REPORT MODEL SBC_1N.SWI - ASSORTED MODIFICATIONS
 model sbc_1tc.swi with narrowing of conveyance 1330 overflow channel from 50' to


 ARRANGEMENT OF SUBCATCHMENTS AND GUTTERS/PIPES

      GUTTER     TRIBUTARY GUTTER/PIPE                                              TRIBUTARY SUBAREA                              D.A.(AC)

          1         2    5    0    0    0    0    0    0    0    0              1    0    0    0    0    0    0    0    0    0 64741.0

          2         3    4    0    0    0    0    0    0    0    0              2    0    0    0    0    0    0    0    0    0  2408.0

          3         0    0    0    0    0    0    0    0    0    0              3    0    0    0    0    0    0    0    0    0   929.0

          4         0    0    0    0    0    0    0    0    0    0              4    0    0    0    0    0    0    0    0    0   960.0

          5         7    6   13    0    0    0    0    0    0    0              5    0    0    0    0    0    0    0    0    0 61766.0

          6       397    0    0    0    0    0    0    0    0    0              6    0    0    0    0    0    0    0    0    0 59943.0

          7         9   10    0    0    0    0    0    0    0    0              7    0    0    0    0    0    0    0    0    0   986.0

          8        15   22    0    0    0    0    0    0    0    0              8    0    0    0    0    0    0    0    0    0 59647.0

          9         0    0    0    0    0    0    0    0    0    0              9    0    0    0    0    0    0    0    0    0   411.0

         10         0    0    0    0    0    0    0    0    0    0             10    0    0    0    0    0    0    0    0    0   202.0

         11         0    0    0    0    0    0    0    0    0    0             11    0    0    0    0    0    0    0    0    0   113.0

         12         0    0    0    0    0    0    0    0    0    0             12    0    0    0    0    0    0    0    0    0   159.0

         13        11   12    0    0    0    0    0    0    0    0             13    0    0    0    0    0    0    0    0    0   501.0

         14         0    0    0    0    0    0    0    0    0    0             14    0    0    0    0    0    0    0    0    0   132.0

         15        14   16    0    0    0    0    0    0    0    0             15    0    0    0    0    0    0    0    0    0 53636.0

         16        40   17    0    0    0    0    0    0    0    0             16    0    0    0    0    0    0    0    0    0 53468.0

         17        18   21    0    0    0    0    0    0    0    0             17    0    0    0    0    0    0    0    0    0  1706.0

         18        20    0    0    0    0    0    0    0    0    0             18    0    0    0    0    0    0    0    0    0  1171.0
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   20      0    0    0    0    0    0    0    0    0    0            19    0    0    0    0    0    0    0    0    0    606.0
   21      0    0    0    0    0    0    0    0    0    0            20    0    0    0    0    0    0    0    0    0    379.0
   22     23   24    0    0    0    0    0    0    0    0            21    0    0    0    0    0    0    0    0    0   4784.0
   23     37   34   31    0    0    0    0    0    0    0            22    0    0    0    0    0    0    0    0    0   2671.0
   24     25   26    0    0    0    0    0    0    0    0            23    0    0    0    0    0    0    0    0    0   1666.0
   25      0    0    0    0    0    0    0    0    0    0            24    0    0    0    0    0    0    0    0    0    363.0
   26     27   28    0    0    0    0    0    0    0    0            25    0    0    0    0    0    0    0    0    0   1199.0
   27      0    0    0    0    0    0    0    0    0    0            26    0    0    0    0    0    0    0    0    0    107.0
   28     29   30    0    0    0    0    0    0    0    0            27    0    0    0    0    0    0    0    0    0    998.0
   29      0    0    0    0    0    0    0    0    0    0            28    0    0    0    0    0    0    0    0    0    152.0
   30      0    0    0    0    0    0    0    0    0    0            29    0    0    0    0    0    0    0    0    0    546.0
   31     32   33    0    0    0    0    0    0    0    0            30    0    0    0    0    0    0    0    0    0    508.0
   32      0    0    0    0    0    0    0    0    0    0            31    0    0    0    0    0    0    0    0    0    144.0
   33      0    0    0    0    0    0    0    0    0    0            32    0    0    0    0    0    0    0    0    0    257.0
   34     35   36    0    0    0    0    0    0    0    0            33    0    0    0    0    0    0    0    0    0    844.0
   35      0    0    0    0    0    0    0    0    0    0            34    0    0    0    0    0    0    0    0    0    148.0
   36      0    0    0    0    0    0    0    0    0    0            35    0    0    0    0    0    0    0    0    0    251.0
   37     38   39    0    0    0    0    0    0    0    0            36    0    0    0    0    0    0    0    0    0   1124.0
   38      0    0    0    0    0    0    0    0    0    0            37    0    0    0    0    0    0    0    0    0    368.0
   39      0    0    0    0    0    0    0    0    0    0            38    0    0    0    0    0    0    0    0    0    290.0
   40     41   42    0    0    0    0    0    0    0    0            39    0    0    0    0    0    0    0    0    0  51645.0
   41      0    0    0    0    0    0    0    0    0    0            40    0    0    0    0    0    0    0    0    0    205.0
   42     46   62   68    0    0    0    0    0    0    0            41    0    0    0    0    0    0    0    0    0  51084.0
   44   1512 1501    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0  30179.0
   46     59   60    0    0    0    0    0    0    0    0            42    0    0    0    0    0    0    0    0    0  47929.0
   48     50   49    0    0    0    0    0    0    0    0            69    0    0    0    0    0    0    0    0    0  72077.0
   49      0    0    0    0    0    0    0    0    0    0            72    0    0    0    0    0    0    0    0    0    220.0
   50     51   52   56    0    0    0    0    0    0    0            71    0    0    0    0    0    0    0    0    0  71466.0
   51      0    0    0    0    0    0    0    0    0    0            82    0    0    0    0    0    0    0    0    0    362.0
   52    244  245   53    0    0    0    0    0    0    0            73    0    0    0    0    0    0    0    0    0  69055.0
   53     54   55    0    0    0    0    0    0    0    0            75    0    0    0    0    0    0    0    0    0    536.0
   54      0    0    0    0    0    0    0    0    0    0            76    0    0    0    0    0    0    0    0    0    213.0
   55      0    0    0    0    0    0    0    0    0    0            77    0    0    0    0    0    0    0    0    0    297.0
   56     57   58    0    0    0    0    0    0    0    0            78   79    0    0    0    0    0    0    0    0  71842.0
   57      0    0    0    0    0    0    0    0    0    0            81    0    0    0    0    0    0    0    0    0    776.0
   58      0    0    0    0    0    0    0    0    0    0            80    0    0    0    0    0    0    0    0    0    220.0
   59     74   71    0    0    0    0    0    0    0    0            43    0    0    0    0    0    0    0    0    0  47507.0
   60      0    0    0    0    0    0    0    0    0    0            44    0    0    0    0    0    0    0    0    0    225.0
   61     63   64    0    0    0    0    0    0    0    0            45    0    0    0    0    0    0    0    0    0   1044.0
   62     61   65    0    0    0    0    0    0    0    0            46    0    0    0    0    0    0    0    0    0   2039.0
   63      0    0    0    0    0    0    0    0    0    0            47    0    0    0    0    0    0    0    0    0    234.0
   64      0    0    0    0    0    0    0    0    0    0            48    0    0    0    0    0    0    0    0    0    258.0
   65     66   67    0    0    0    0    0    0    0    0            49    0    0    0    0    0    0    0    0    0    956.0
   66      0    0    0    0    0    0    0    0    0    0            50    0    0    0    0    0    0    0    0    0    108.0
   67      0    0    0    0    0    0    0    0    0    0            51    0    0    0    0    0    0    0    0    0    636.0
   68     69   70    0    0    0    0    0    0    0    0            52    0    0    0    0    0    0    0    0    0    523.0
   69      0    0    0    0    0    0    0    0    0    0            53    0    0    0    0    0    0    0    0    0    197.0
   70      0    0    0    0    0    0    0    0    0    0            54    0    0    0    0    0    0    0    0    0    246.0
   71     72   73    0    0    0    0    0    0    0    0            55    0    0    0    0    0    0    0    0    0   1094.0
   72      0    0    0    0    0    0    0    0    0    0            56    0    0    0    0    0    0    0    0    0    197.0
   73      0    0    0    0    0    0    0    0    0    0            57    0    0    0    0    0    0    0    0    0    636.0
```

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   74       77   76   94    0    0    0    0    0    0    0         58    0    0    0    0    0    0    0    0    0  46117.0
   75       79   78    0    0    0    0    0    0    0    0         61    0    0    0    0    0    0    0    0    0   3945.0
   76        0    0    0    0    0    0    0    0    0    0         63    0    0    0    0    0    0    0    0    0    379.0
   77       75   88    0    0    0    0    0    0    0    0         65    0    0    0    0    0    0    0    0    0   4793.0
   78        0    0    0    0    0    0    0    0    0    0         66    0    0    0    0    0    0    0    0    0    256.0
   79       80  121    0    0    0    0    0    0    0    0         70    0    0    0    0    0    0    0    0    0   3627.0
   80       82   81    0    0    0    0    0    0    0    0         83    0    0    0    0    0    0    0    0    0   2668.0
   81       87    0    0    0    0    0    0    0    0    0         84    0    0    0    0    0    0    0    0    0    958.0
   82       84   83    0    0    0    0    0    0    0    0         85    0    0    0    0    0    0    0    0    0    848.0
   83        0    0    0    0    0    0    0    0    0    0         86    0    0    0    0    0    0    0    0    0    197.0
   84       85   86    0    0    0    0    0    0    0    0         87    0    0    0    0    0    0    0    0    0    555.0
   85        0    0    0    0    0    0    0    0    0    0         88    0    0    0    0    0    0    0    0    0    118.0
   86        0    0    0    0    0    0    0    0    0    0         89    0    0    0    0    0    0    0    0    0    331.0
   87        0    0    0    0    0    0    0    0    0    0         90    0    0    0    0    0    0    0    0    0    655.0
   88       89   93    0    0    0    0    0    0    0    0         91    0    0    0    0    0    0    0    0    0    782.0
   89        0    0    0    0    0    0    0    0    0    0        228    0    0    0    0    0    0    0    0    0    319.0
   93        0    0    0    0    0    0    0    0    0    0        229    0    0    0    0    0    0    0    0    0    111.0
   94       95   97    0    0    0    0    0    0    0    0         92    0    0    0    0    0    0    0    0    0  40534.0
   95       96  116    0    0    0    0    0    0    0    0        230    0    0    0    0    0    0    0    0    0  34430.0
   96      129  122    0    0    0    0    0    0    0    0         93    0    0    0    0    0    0    0    0    0  33528.0
   97       99   98    0    0    0    0    0    0    0    0         94    0    0    0    0    0    0    0    0    0   5629.0
   98        0    0    0    0    0    0    0    0    0    0         95    0    0    0    0    0    0    0    0    0    309.0
   99      101  100    0    0    0    0    0    0    0    0         96    0    0    0    0    0    0    0    0    0   4848.0
  100        0    0    0    0    0    0    0    0    0    0         97    0    0    0    0    0    0    0    0    0    458.0
  101      102  107    0    0    0    0    0    0    0    0         98    0    0    0    0    0    0    0    0    0   4335.0
  102      106  103    0    0    0    0    0    0    0    0         99    0    0    0    0    0    0    0    0    0   2382.0
  103      104  105    0    0    0    0    0    0    0    0        100    0    0    0    0    0    0    0    0    0   1795.0
  104      119  117    0    0    0    0    0    0    0    0        101    0    0    0    0    0    0    0    0    0   1302.0
  105        0    0    0    0    0    0    0    0    0    0        102    0    0    0    0    0    0    0    0    0    343.0
  106        0    0    0    0    0    0    0    0    0    0        103    0    0    0    0    0    0    0    0    0    273.0
  107      108  109    0    0    0    0    0    0    0    0        104    0    0    0    0    0    0    0    0    0   1871.0
  108        0    0    0    0    0    0    0    0    0    0        105    0    0    0    0    0    0    0    0    0    202.0
  109      110  111    0    0    0    0    0    0    0    0        106    0    0    0    0    0    0    0    0    0   1563.0
  110      112  113    0    0    0    0    0    0    0    0        107    0    0    0    0    0    0    0    0    0   1148.0
  111        0    0    0    0    0    0    0    0    0    0        108    0    0    0    0    0    0    0    0    0    199.0
  112      114  115    0    0    0    0    0    0    0    0        109    0    0    0    0    0    0    0    0    0    540.0
  113        0    0    0    0    0    0    0    0    0    0        110    0    0    0    0    0    0    0    0    0    209.0
  114        0    0    0    0    0    0    0    0    0    0        111    0    0    0    0    0    0    0    0    0    230.0
  115        0    0    0    0    0    0    0    0    0    0        112    0    0    0    0    0    0    0    0    0    102.0
  116        0    0    0    0    0    0    0    0    0    0        113    0    0    0    0    0    0    0    0    0    702.0
  117        0    0    0    0    0    0    0    0    0    0        114    0    0    0    0    0    0    0    0    0    390.0
  118        0    0    0    0    0    0    0    0    0    0        115    0    0    0    0    0    0    0    0    0    453.0
  119      120  118    0    0    0    0    0    0    0    0        116    0    0    0    0    0    0    0    0    0    707.0
  120        0    0    0    0    0    0    0    0    0    0        117    0    0    0    0    0    0    0    0    0    220.0
  121        0    0    0    0    0    0    0    0    0    0         74    0    0    0    0    0    0    0    0    0    326.0
  122      124  123    0    0    0    0    0    0    0    0        118    0    0    0    0    0    0    0    0    0   2595.0
  123      127  128    0    0    0    0    0    0    0    0        119    0    0    0    0    0    0    0    0    0   1409.0
  124      125  126    0    0    0    0    0    0    0    0        120    0    0    0    0    0    0    0    0    0    705.0
  125        0    0    0    0    0    0    0    0    0    0        124    0    0    0    0    0    0    0    0    0    220.0
  126        0    0    0    0    0    0    0    0    0    0        125    0    0    0    0    0    0    0    0    0     88.0
  127        0    0    0    0    0    0    0    0    0    0        126    0    0    0    0    0    0    0    0    0    548.0
```

```
128      0    0    0    0    0    0    0    0    0    0          127   0    0    0    0    0    0    0    0    0    472.0
129    137  130    0    0    0    0    0    0    0    0          128   0    0    0    0    0    0    0    0    0 30354.0
130    133  131  132    0    0    0    0    0    0    0          129   0    0    0    0    0    0    0    0    0  2081.0
131      0    0    0    0    0    0    0    0    0    0          130   0    0    0    0    0    0    0    0    0   290.0
132      0    0    0    0    0    0    0    0    0    0          131   0    0    0    0    0    0    0    0    0   213.0
133    134    0    0    0    0    0    0    0    0    0          132   0    0    0    0    0    0    0    0    0  1468.0
134    135  136    0    0    0    0    0    0    0    0          133   0    0    0    0    0    0    0    0    0   972.0
135      0    0    0    0    0    0    0    0    0    0          134   0    0    0    0    0    0    0    0    0   160.0
136      0    0    0    0    0    0    0    0    0    0          135   0    0    0    0    0    0    0    0    0   282.0
137    138  139    0    0    0    0    0    0    0    0          136   0    0    0    0    0    0    0    0    0 28122.0
138      0    0    0    0    0    0    0    0    0    0          137   0    0    0    0    0    0    0    0    0   383.0
139    149  140    0    0    0    0    0    0    0    0          138   0    0    0    0    0    0    0    0    0 27597.0
140    142  141    0    0    0    0    0    0    0    0          139   0    0    0    0    0    0    0    0    0  2013.0
141      0    0    0    0    0    0    0    0    0    0          140   0    0    0    0    0    0    0    0    0   132.0
142    146  143    0    0    0    0    0    0    0    0          141   0    0    0    0    0    0    0    0    0  1697.0
143    144  145    0    0    0    0    0    0    0    0          142   0    0    0    0    0    0    0    0    0   540.0
144      0    0    0    0    0    0    0    0    0    0          143   0    0    0    0    0    0    0    0    0   274.0
145      0    0    0    0    0    0    0    0    0    0          144   0    0    0    0    0    0    0    0    0    79.0
146    147  148    0    0    0    0    0    0    0    0          145   0    0    0    0    0    0    0    0    0  1054.0
147      0    0    0    0    0    0    0    0    0    0          146   0    0    0    0    0    0    0    0    0   283.0
148      0    0    0    0    0    0    0    0    0    0          147   0    0    0    0    0    0    0    0    0   453.0
149    152  150  151    0    0    0    0    0    0    0          148   0    0    0    0    0    0    0    0    0 25514.0
150      0    0    0    0    0    0    0    0    0    0          149   0    0    0    0    0    0    0    0    0    58.0
151      0    0    0    0    0    0    0    0    0    0          150   0    0    0    0    0    0    0    0    0   189.0
152    153  154    0    0    0    0    0    0    0    0          151   0    0    0    0    0    0    0    0    0 25053.0
153      0    0    0    0    0    0    0    0    0    0          152   0    0    0    0    0    0    0    0    0   249.0
154    156  155    0    0    0    0    0    0    0    0          153   0    0    0    0    0    0    0    0    0 24303.0
155      0    0    0    0    0    0    0    0    0    0          154   0    0    0    0    0    0    0    0    0   161.0
156    157  158    0    0    0    0    0    0    0    0          155   0    0    0    0    0    0    0    0    0 23893.0
157    172  163  170  171    0    0    0    0    0    0          156   0    0    0    0    0    0    0    0    0 21505.0
158    160  159    0    0    0    0    0    0    0    0          157   0    0    0    0    0    0    0    0    0  1865.0
159      0    0    0    0    0    0    0    0    0    0          158   0    0    0    0    0    0    0    0    0   476.0
160    161  162    0    0    0    0    0    0    0    0          159   0    0    0    0    0    0    0    0    0  1045.0
161      0    0    0    0    0    0    0    0    0    0          160   0    0    0    0    0    0    0    0    0   341.0
162      0    0    0    0    0    0    0    0    0    0          161   0    0    0    0    0    0    0    0    0   362.0
163    166  164    0    0    0    0    0    0    0    0          162   0    0    0    0    0    0    0    0    0  1286.0
164      0    0    0    0    0    0    0    0    0    0          163   0    0    0    0    0    0    0    0    0    76.0
165    168  169    0    0    0    0    0    0    0    0          164   0    0    0    0    0    0    0    0    0   784.0
166    165  167    0    0    0    0    0    0    0    0          165   0    0    0    0    0    0    0    0    0  1098.0
167      0    0    0    0    0    0    0    0    0    0          166   0    0    0    0    0    0    0    0    0   215.0
168      0    0    0    0    0    0    0    0    0    0          167   0    0    0    0    0    0    0    0    0   259.0
169      0    0    0    0    0    0    0    0    0    0          168   0    0    0    0    0    0    0    0    0   175.0
170      0    0    0    0    0    0    0    0    0    0          169   0    0    0    0    0    0    0    0    0   332.0
171      0    0    0    0    0    0    0    0    0    0          170   0    0    0    0    0    0    0    0    0   139.0
172    187  173    0    0    0    0    0    0    0    0          171   0    0    0    0    0    0    0    0    0 19645.0
173    174  175    0    0    0    0    0    0    0    0          172   0    0    0    0    0    0    0    0    0  5003.0
174      0    0    0    0    0    0    0    0    0    0          173   0    0    0    0    0    0    0    0    0   188.0
175    177  176    0    0    0    0    0    0    0    0          174   0    0    0    0    0    0    0    0    0  4585.0
176    180  179    0    0    0    0    0    0    0    0          175   0    0    0    0    0    0    0    0    0  3882.0
177    178    0    0    0    0    0    0    0    0    0          176   0    0    0    0    0    0    0    0    0   625.0
178      0    0    0    0    0    0    0    0    0    0          177   0    0    0    0    0    0    0    0    0   392.0
```

```
  179      0    0    0    0    0    0    0    0    0    0      178    0    0    0    0    0    0    0    0    0    211.0
  180    181  182    0    0    0    0    0    0    0    0      179    0    0    0    0    0    0    0    0    0   2955.0
  181      0    0    0    0    0    0    0    0    0    0      180    0    0    0    0    0    0    0    0    0    438.0
  182    183  184    0    0    0    0    0    0    0    0      181    0    0    0    0    0    0    0    0    0   2016.0
  183      0    0    0    0    0    0    0    0    0    0      182    0    0    0    0    0    0    0    0    0    599.0
  184    186  185    0    0    0    0    0    0    0    0      183    0    0    0    0    0    0    0    0    0    910.0
  185      0    0    0    0    0    0    0    0    0    0      184    0    0    0    0    0    0    0    0    0    232.0
  186      0    0    0    0    0    0    0    0    0    0      185    0    0    0    0    0    0    0    0    0    461.0
  187    192  193    0    0    0    0    0    0    0    0      186    0    0    0    0    0    0    0    0    0  14569.0
  192    194  205    0    0    0    0    0    0    0    0      187    0    0    0    0    0    0    0    0    0  13278.0
  193      0    0    0    0    0    0    0    0    0    0      188    0    0    0    0    0    0    0    0    0    273.0
  194    198  199  196  195    0    0    0    0    0    0      189    0    0    0    0    0    0    0    0    0   5663.0
  195      0    0    0    0    0    0    0    0    0    0      190    0    0    0    0    0    0    0    0    0    251.0
  196      0    0    0    0    0    0    0    0    0    0      195    0    0    0    0    0    0    0    0    0    387.0
  198    201  200  202    0    0    0    0    0    0    0      196    0    0    0    0    0    0    0    0    0   3544.0
  199      0    0    0    0    0    0    0    0    0    0      197    0    0    0    0    0    0    0    0    0    634.0
  200      0    0    0    0    0    0    0    0    0    0      198    0    0    0    0    0    0    0    0    0    542.0
  201    204  203    0    0    0    0    0    0    0    0      199    0    0    0    0    0    0    0    0    0   1955.0
  202      0    0    0    0    0    0    0    0    0    0      200    0    0    0    0    0    0    0    0    0    250.0
  203      0    0    0    0    0    0    0    0    0    0      203    0    0    0    0    0    0    0    0    0    258.0
  204      0    0    0    0    0    0    0    0    0    0      204    0    0    0    0    0    0    0    0    0    854.0
  205    207  206    0    0    0    0    0    0    0    0      205    0    0    0    0    0    0    0    0    0   7500.0
  206      0    0    0    0    0    0    0    0    0    0      206    0    0    0    0    0    0    0    0    0    250.0
  207    211  208    0    0    0    0    0    0    0    0      207    0    0    0    0    0    0    0    0    0   6855.0
  208      0    0    0    0    0    0    0    0    0    0      208    0    0    0    0    0    0    0    0    0    275.0
  211    212  215    0    0    0    0    0    0    0    0      209    0    0    0    0    0    0    0    0    0   5808.0
  212    214  213    0    0    0    0    0    0    0    0      210    0    0    0    0    0    0    0    0    0   1581.0
  213      0    0    0    0    0    0    0    0    0    0      211    0    0    0    0    0    0    0    0    0    511.0
  214      0    0    0    0    0    0    0    0    0    0      212    0    0    0    0    0    0    0    0    0    482.0
  215    219  216  217    0    0    0    0    0    0    0      213    0    0    0    0    0    0    0    0    0   3943.0
  216      0    0    0    0    0    0    0    0    0    0      214    0    0    0    0    0    0    0    0    0    505.0
  217      0    0    0    0    0    0    0    0    0    0      215    0    0    0    0    0    0    0    0    0    245.0
  218    222  221    0    0    0    0    0    0    0    0      219    0    0    0    0    0    0    0    0    0   1711.0
  219    220  218    0    0    0    0    0    0    0    0      220    0    0    0    0    0    0    0    0    0   2654.0
  220      0    0    0    0    0    0    0    0    0    0      221    0    0    0    0    0    0    0    0    0    506.0
  221      0    0    0    0    0    0    0    0    0    0      222    0    0    0    0    0    0    0    0    0    250.0
  222    224  223    0    0    0    0    0    0    0    0      223    0    0    0    0    0    0    0    0    0   1417.0
  223      0    0    0    0    0    0    0    0    0    0      224    0    0    0    0    0    0    0    0    0    309.0
  224    226  225    0    0    0    0    0    0    0    0      225    0    0    0    0    0    0    0    0    0    926.0
  225      0    0    0    0    0    0    0    0    0    0      226    0    0    0    0    0    0    0    0    0    152.0
  226      0    0    0    0    0    0    0    0    0    0      227    0    0    0    0    0    0    0    0    0    286.0
  231    252    0    0    0    0    0    0    0    0    0      231    0    0    0    0    0    0    0    0    0  86054.0
  232    234  233    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  85664.0
  233    251    0    0    0    0    0    0    0    0    0      233    0    0    0    0    0    0    0    0    0  85477.0
  234    239    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    187.0
  235      0    0    0    0    0    0    0    0    0    0      235    0    0    0    0    0    0    0    0    0    187.0
  236    232    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  85664.0
  237    238    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  85196.0
  238   1927  240    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  85196.0
  239    235    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    187.0
  240    241    0    0    0    0    0    0    0    0    0      240    0    0    0    0    0    0    0    0    0  84397.0
```

```
241    242    0    0    0    0    0    0    0    0    0     241    0    0    0    0    0    0    0    0    0 84351.0
242    377  289  243    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0 84008.0
243   1427    0    0    0    0    0    0    0    0    0     243    0    0    0    0    0    0    0    0    0 80261.0
244      0    0    0    0    0    0    0    0    0    0     253    0    0    0    0    0    0    0    0    0   848.0
245      1  246    0    0    0    0    0    0    0    0     254    0    0    0    0    0    0    0    0    0 67230.0
246    247  250    0    0    0    0    0    0    0    0     255    0    0    0    0    0    0    0    0    0  2389.0
247      0    0    0    0    0    0    0    0    0    0     256    0    0    0    0    0    0    0    0    0   808.0
248      0    0    0    0    0    0    0    0    0    0     257    0    0    0    0    0    0    0    0    0   645.0
249      0    0    0    0    0    0    0    0    0    0     258    0    0    0    0    0    0    0    0    0   377.0
250    248  249    0    0    0    0    0    0    0    0     259    0    0    0    0    0    0    0    0    0  1131.0
251    237    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0 85196.0
252    236    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0 85664.0
261     44    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0 80179.0
262   1935    0    0    0    0    0    0    0    0    0     262    0    0    0    0    0    0    0    0    0  2758.0
263    262    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0  2758.0
264   1905    0    0    0    0    0    0    0    0    0     264    0    0    0    0    0    0    0    0    0  2784.0
265    264    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0  2784.0
266      0    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0      .0
267    293 1267    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0  3624.0
268    267    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0  3624.0
269    265    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0  2784.0
270    271    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0 86842.0
271    319  231    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0 86842.0
280    294    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0  3624.0
289   1924    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0  3653.0
290   1290    0    0    0    0    0    0    0    0    0     290    0    0    0    0    0    0    0    0    0  3653.0
291   1291    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0  3624.0
292   1923    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0      .0
293   1293    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0  3624.0
294   1294  304 1920    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0  3624.0
295   1295    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0      .0
296   1296    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0      .0
297    298    0    0    0    0    0    0    0    0    0     297    0    0    0    0    0    0    0    0    0   587.0
298    303    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0   249.0
299      0    0    0    0    0    0    0    0    0    0     299    0    0    0    0    0    0    0    0    0    72.0
300    301    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0   177.0
301      0    0    0    0    0    0    0    0    0    0     301    0    0    0    0    0    0    0    0    0   177.0
303    299 1922    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0   249.0
304      0    0    0    0    0    0    0    0    0    0     304    0    0    0    0    0    0    0    0    0   150.0
308    396    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0     7.0
310   1409 1310    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0      .0
311    371  312    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0   247.0
312   1940    0    0    0    0    0    0    0    0    0     312    0    0    0    0    0    0    0    0    0   100.0
313   1939    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0     7.0
314    308    0    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0     7.0
315    310    0    0    0    0    0    0    0    0    0     315    0    0    0    0    0    0    0    0    0    28.0
316      0    0    0    0    0    0    0    0    0    0     316    0    0    0    0    0    0    0    0    0    43.0
317    315  316    0    0    0    0    0    0    0    0       0    0    0    0    0    0    0    0    0    0    71.0
318    338    0    0    0    0    0    0    0    0    0     318    0    0    0    0    0    0    0    0    0   230.0
319   1946    0    0    0    0    0    0    0    0    0     319    0    0    0    0    0    0    0    0    0   788.0
320   1320    0    0    0    0    0    0    0    0    0     320    0    0    0    0    0    0    0    0    0   454.0
```

```
   321    1321    0    0    0    0    0    0    0    0    0       321    0    0    0    0    0    0    0    0    0    34.0
   322    1909    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   454.0
   323    1323    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     9.0
   324     325    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   569.0
   325    1325  326    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   569.0
   326     327  317    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   569.0
   327    1311    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   498.0
   328     337 1329  329    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   498.0
   329     330    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   417.0
   330    1306 1303    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   417.0
   331    1331 1407    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
   332     333  334    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    10.0
   333    1333    0    0    0    0    0    0    0    0    0       333    0    0    0    0    0    0    0    0    0     5.0
   334    1334    0    0    0    0    0    0    0    0    0       334    0    0    0    0    0    0    0    0    0     5.0
   335    1335    0    0    0    0    0    0    0    0    0       335    0    0    0    0    0    0    0    0    0   417.0
   336    1336    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
   337     331    0    0    0    0    0    0    0    0    0       337    0    0    0    0    0    0    0    0    0    50.0
   338       0    0    0    0    0    0    0    0    0    0       338    0    0    0    0    0    0    0    0    0    73.0
   339    1822    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
   340    1340    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
   341    1341    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
   342    1342    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   381.0
   343    1343    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   381.0
   344     366    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    81.0
   345     346    0    0    0    0    0    0    0    0    0       345    0    0    0    0    0    0    0    0    0   149.0
   346       0    0    0    0    0    0    0    0    0    0       346    0    0    0    0    0    0    0    0    0    71.0
   347    1915    0    0    0    0    0    0    0    0    0       347    0    0    0    0    0    0    0    0    0   212.0
   348    1348    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
   349       0    0    0    0    0    0    0    0    0    0       349    0    0    0    0    0    0    0    0    0    13.0
   350       0    0    0    0    0    0    0    0    0    0       350    0    0    0    0    0    0    0    0    0    51.0
   351    1814    0    0    0    0    0    0    0    0    0       351    0    0    0    0    0    0    0    0    0   100.0
   352    1919    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    41.0
   353       0    0    0    0    0    0    0    0    0    0       353    0    0    0    0    0    0    0    0    0    41.0
   354    1817    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     6.0
   355       0    0    0    0    0    0    0    0    0    0       355    0    0    0    0    0    0    0    0    0     7.0
   356     359    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   381.0
   357    1357    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   259.0
   358     311    0    0    0    0    0    0    0    0    0       358    0    0    0    0    0    0    0    0    0   259.0
   359     345  347  349  355    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   381.0
   360    1360  292    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
   361       0    0    0    0    0    0    0    0    0    0       361    0    0    0    0    0    0    0    0    0    30.0
   362    1362  363    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     7.0
   363       0    0    0    0    0    0    0    0    0    0       363    0    0    0    0    0    0    0    0    0     7.0
   366    1366    0    0    0    0    0    0    0    0    0       366    0    0    0    0    0    0    0    0    0    81.0
   367    1367    0    0    0    0    0    0    0    0    0       367    0    0    0    0    0    0    0    0    0    23.0
   368       0    0    0    0    0    0    0    0    0    0       368    0    0    0    0    0    0    0    0    0    99.0
   369       0    0    0    0    0    0    0    0    0    0       369    0    0    0    0    0    0    0    0    0    17.0
   370       0    0    0    0    0    0    0    0    0    0       370    0    0    0    0    0    0    0    0    0    41.0
   371     372    0    0    0    0    0    0    0    0    0       371    0    0    0    0    0    0    0    0    0   147.0
   372     374  373  367    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    64.0
   373       0    0    0    0    0    0    0    0    0    0       373    0    0    0    0    0    0    0    0    0    38.0
```

```
 374   1374    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      3.0
 375    376    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      3.0
 376    266    0    0    0    0    0    0    0    0    0       376    0    0    0    0    0    0    0    0    0      3.0
 377   1925    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     94.0
 378   1378    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     94.0
 379    380    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     94.0
 380   1821    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     94.0
 381    382    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     77.0
 382   1381    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     77.0
 383   1820    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     77.0
 384      0    0    0    0    0    0    0    0    0    0       384    0    0    0    0    0    0    0    0    0     77.0
 385      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
 386   1386    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
 387   1387    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    259.0
 388      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
 389      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
 390   1912    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    799.0
 391    392    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    569.0
 392   1941 1392    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    569.0
 393    358    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    259.0
 394    395    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
 395    386    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
 396   1396    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      7.0
 397      8    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  59647.0
 398    362    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      7.0
 399    270    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  36842.0
1238    390    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    799.0
1262      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1267      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1289      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1290    291    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   3624.0
1291    268    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   3624.0
1293    280    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   3624.0
1294    269    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2784.0
1295      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1296    295    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1301    335    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    417.0
1302   1301    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    417.0
1303   1302    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    417.0
1304      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1305   1307 1304    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     10.0
1306      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1307   1308    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     10.0
1308    332    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     10.0
1309    328    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    498.0
1310    336    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1311   1309    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    498.0
1312      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1313    339    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1320   1908 1907 1361    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    293.0
1321    323    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      9.0
```

```
1323   1402    0    0    0    0    0    0    0    0    0      1323    0    0    0    0    0    0    0    0    0     9.0
1325      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1329      0    0    0    0    0    0    0    0    0    0       336    0    0    0    0    0    0    0    0    0    31.0
1330    368 1312    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    99.0
1331      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1332   1330    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    99.0
1333    340    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1334    341    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1335    342    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   381.0
1336      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1337    321    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    34.0
1338   1337    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    34.0
1339      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1340      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1341      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1342    343    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   381.0
1343    356    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   381.0
1348      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1357    393    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   259.0
1360      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1361   1338    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    34.0
1362      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1363      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1364    361 1363    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    30.0
1365   1370 1364    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   129.0
1366      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1367      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1368   1332    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    99.0
1369   1368    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    99.0
1370   1369    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    99.0
1371      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1372   1371 1377    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1373   1945    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   170.0
1374    375    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     3.0
1375   1373    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   170.0
1376   1375    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   170.0
1377      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1378   1406 1404    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    94.0
1381   1382 1405    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    77.0
1382    296    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1383      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1386   1937  385    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1387   1401    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   259.0
1392    324    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   569.0
1393      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1396    398    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     7.0
1401    357    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   259.0
1402      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1403      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1404      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1405    383    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    77.0
```

1406	379	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	94.0
1407	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.0
1408	344	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81.0
1409	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.0
1410	0	0	0	0	0	0	0	0	0	0	1410	0	0	0	0	0	0	0	0	0	195.0
1411	1410	1424	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77101.0
1412	1411	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77101.0
1413	1412	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77101.0
1414	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.0
1415	0	0	0	0	0	0	0	0	0	0	1415	0	0	0	0	0	0	0	0	0	307.0
1416	1415	1553	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1203.0
1420	0	0	0	0	0	0	0	0	0	0	1420	0	0	0	0	0	0	0	0	0	59.0
1421	1420	1426	1441	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76906.0
1423	1421	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76906.0
1424	1423	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76906.0
1425	0	0	0	0	0	0	0	0	0	0	1425	0	0	0	0	0	0	0	0	0	68.0
1426	1438	1425	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	382.0
1427	261	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80179.0
1428	1528	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	.0
1429	1428	1416	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1203.0
1430	0	0	0	0	0	0	0	0	0	0	1430	0	0	0	0	0	0	0	0	0	82.0
1431	1430	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	82.0
1435	0	0	0	0	0	0	0	0	0	0	1435	0	0	0	0	0	0	0	0	0	232.0
1436	1435	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	232.0
1438	1436	1431	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	314.0
1440	0	0	0	0	0	0	0	0	0	0	1440	0	0	0	0	0	0	0	0	0	66.0
1441	1453	1440	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76465.0
1442	1514	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2719.0
1445	0	0	0	0	0	0	0	0	0	0	1445	0	0	0	0	0	0	0	0	0	164.0
1446	1445	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	164.0
1450	0	0	0	0	0	0	0	0	0	0	1450	0	0	0	0	0	0	0	0	0	198.0
1451	1603	1450	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76235.0
1453	1446	1451	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	76399.0
1455	0	0	0	0	0	0	0	0	0	0	1455	0	0	0	0	0	0	0	0	0	542.0
1456	1455	1482	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1274.0
1457	1456	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1274.0
1460	0	0	0	0	0	0	0	0	0	0	1460	0	0	0	0	0	0	0	0	0	286.0
1461	1460	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	286.0
1465	0	0	0	0	0	0	0	0	0	0	1465	0	0	0	0	0	0	0	0	0	93.0
1467	1933	1932	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2351.0
1468	1467	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2351.0
1480	1938	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	732.0
1481	1480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	732.0
1482	1481	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	732.0
1490	0	0	0	0	0	0	0	0	0	0	1490	0	0	0	0	0	0	0	0	0	698.0
1491	1490	1457	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1972.0
1500	0	0	0	0	0	0	0	0	0	0	1500	0	0	0	0	0	0	0	0	0	465.0
1501	1500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	465.0
1505	0	0	0	0	0	0	0	0	0	0	1505	0	0	0	0	0	0	0	0	0	262.0
1506	1505	1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79714.0
1507	1506	1508	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79714.0

```
1508      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1509   1413    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 77101.0
1510      0    0    0    0    0    0    0    0    0    0      1510    0    0    0    0    0    0    0    0    0    76.0
1511   1522 1510    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2719.0
1512   1507    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 79714.0
1513   1511    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2719.0
1514   1513    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2719.0
1515      0    0    0    0    0    0    0    0    0    0      1515    0    0    0    0    0    0    0    0    0     8.0
1517   1716 1515    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   123.0
1520      0    0    0    0    0    0    0    0    0    0      1520    0    0    0    0    0    0    0    0    0    99.0
1521   1520 1533    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2175.0
1522   1517 1548    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2643.0
1525      0    0    0    0    0    0    0    0    0    0      1525    0    0    0    0    0    0    0    0    0    53.0
1526   1525 1429    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  1256.0
1528      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1530      0    0    0    0    0    0    0    0    0    0      1530    0    0    0    0    0    0    0    0    0   345.0
1531   1530 1546    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   820.0
1532   1526 1531    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2076.0
1533   1537 1534    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2076.0
1534   1414    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
1537   1532    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2076.0
1541      0    0    0    0    0    0    0    0    0    0      1540    0    0    0    0    0    0    0    0    0   345.0
1542   1541    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   345.0
1544   1542 1521    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2520.0
1545      0    0    0    0    0    0    0    0    0    0      1545    0    0    0    0    0    0    0    0    0   253.0
1546   1545 1576    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   475.0
1548   1544    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2520.0
1550      0    0    0    0    0    0    0    0    0    0      1550    0    0    0    0    0    0    0    0    0   424.0
1551   1550 1563    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   642.0
1553   1551 1557    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   896.0
1556      0    0    0    0    0    0    0    0    0    0      1555    0    0    0    0    0    0    0    0    0    83.0
1557   1571 1556    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   254.0
1560      0    0    0    0    0    0    0    0    0    0      1560    0    0    0    0    0    0    0    0    0   123.0
1561   1560    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   123.0
1563   1561 1566    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   218.0
1565      0    0    0    0    0    0    0    0    0    0      1565    0    0    0    0    0    0    0    0    0    95.0
1566   1565    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    95.0
1570      0    0    0    0    0    0    0    0    0    0      1570    0    0    0    0    0    0    0    0    0   171.0
1571   1570    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   171.0
1575      0    0    0    0    0    0    0    0    0    0      1575    0    0    0    0    0    0    0    0    0   222.0
1576   1575    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   222.0
1599   1403 1305 1372  399    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 86852.0
1600      0    0    0    0    0    0    0    0    0    0      1600    0    0    0    0    0    0    0    0    0    25.0
1601   1928 1600    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 73681.0
1603   1601 1929    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 76037.0
1605      0    0    0    0    0    0    0    0    0    0      1605    0    0    0    0    0    0    0    0    0    81.0
1606   1605 1666    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   471.0
1610      0    0    0    0    0    0    0    0    0    0      1610    0    0    0    0    0    0    0    0    0   109.0
1611   1628 1610    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 73185.0
1615      0    0    0    0    0    0    0    0    0    0      1615    0    0    0    0    0    0    0    0    0   228.0
1616   1615    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   228.0
```

```
  1620      0    0    0    0    0    0    0    0    0    0      1620    0    0    0    0    0    0    0    0    0    324.0
  1621   1653 1620    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1816.0
  1623   1616 1621    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2044.0
  1624   1623 1705    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2111.0
  1625      0    0    0    0    0    0    0    0    0    0      1625    0    0    0    0    0    0    0    0    0    197.0
  1626     48 1625 1636    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  72591.0
  1628   1631 1626    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  73076.0
  1630      0    0    0    0    0    0    0    0    0    0      1630    0    0    0    0    0    0    0    0    0    159.0
  1631   1643 1630    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    485.0
  1635      0    0    0    0    0    0    0    0    0    0      1635    0    0    0    0    0    0    0    0    0    317.0
  1636   1635    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    317.0
  1640      0    0    0    0    0    0    0    0    0    0      1640    0    0    0    0    0    0    0    0    0    200.0
  1641   1640    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    200.0
  1643   1646 1641    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    326.0
  1645      0    0    0    0    0    0    0    0    0    0      1645    0    0    0    0    0    0    0    0    0    126.0
  1646   1645    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    126.0
  1650      0    0    0    0    0    0    0    0    0    0      1650    0    0    0    0    0    0    0    0    0    382.0
  1651   1661 1650    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    934.0
  1653   1651 1656    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1492.0
  1655      0    0    0    0    0    0    0    0    0    0      1655    0    0    0    0    0    0    0    0    0    558.0
  1656   1655    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    558.0
  1660      0    0    0    0    0    0    0    0    0    0      1660    0    0    0    0    0    0    0    0    0    552.0
  1661   1660    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    552.0
  1665      0    0    0    0    0    0    0    0    0    0      1665    0    0    0    0    0    0    0    0    0    390.0
  1666   1665    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    390.0
  1705      0    0    0    0    0    0    0    0    0    0      1705    0    0    0    0    0    0    0    0    0     67.0
  1710      0    0    0    0    0    0    0    0    0    0      1710    0    0    0    0    0    0    0    0    0    245.0
  1711   1710    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    245.0
  1712   1711 1624    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2356.0
  1715      0    0    0    0    0    0    0    0    0    0      1715    0    0    0    0    0    0    0    0    0    115.0
  1716   1715    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    115.0
  1800   1509 1468    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  79452.0
  1812    352    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     41.0
  1813   1812    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     41.0
  1814   1813    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     41.0
  1815      0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
  1816   1815    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
  1817   1818 1816    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      6.0
  1818      0    0    0    0    0    0    0    0    0    0       354    0    0    0    0    0    0    0    0    0      6.0
  1820    384 1383    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     77.0
  1821    369 1926    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     94.0
  1822   1339  394    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
  1905    263    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2758.0
  1906    389    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
  1907    388    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
  1908    387    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    259.0
  1909   1906  320    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    454.0
  1910    313    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      7.0
  1911    391  318    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    799.0
  1912   1911    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    799.0
  1913    351  354    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    106.0
```

```
    1914      1913    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   106.0
    1915       350 1914    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   157.0
    1916      1262    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
    1917         0    0    0    0    0    0    0    0    0    0       305    0    0    0    0    0    0    0    0    0   103.0
    1919      1934  353    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    41.0
    1920      1921    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   690.0
    1921       297 1917    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   690.0
    1922       300    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   177.0
    1923         0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
    1924       290 1289    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  3653.0
    1925       378    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    94.0
    1926       381    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    77.0
    1927      1238    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   799.0
    1928      1611 1606    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 73656.0
    1929      1712    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2356.0
    1931      1491 1461    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2258.0
    1932      1465    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    93.0
    1933      1931    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2258.0
    1934       360    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
    1935      1442 1916    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  2719.0
    1937       348    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
    1938         0    0    0    0    0    0    0    0    0    0      1480    0    0    0    0    0    0    0    0    0   732.0
    1939      1313  314    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     7.0
    1940      1910 1408 1942    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    88.0
    1941      1393    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
    1942         0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      .0
    1943       322    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   454.0
    1944      1365  370    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   170.0
    1945      1944    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   170.0
    1946      1376 1943    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   624.0
    1947      1599    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0 86852.0
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  359 TO GUTTER  266 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  428 TO GUTTER  385 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  541 TO GUTTER  388 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  565 TO GUTTER  389 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
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SBC CHANGES FROM DRAFT REPORT MODEL SBC_1N.SWI - ASSORTED MODIFICATIONS
model sbc_ltc.swi with narrowing of conveyance 1330 overflow channel from 50' to


*** PEAK FLOWS, STAGES AND STORAGES OF GUTTERS AND DETENTION DAMS ***

 CONVEYANCE   PEAK       STAGE       STORAGE      TIME
  ELEMENT    (CFS)       (FT)       (AC-FT)    (HR/MIN)

       1     4277.       6.4                   12  30.              99      1317.         4.0                       8  40.
       2     1975.       5.5                    8  35.             100       300.         2.0                       8  30.
       3      788.       1.9                    8  30.             101      1001.         3.7                       8  40
       4      790.       1.7                    8  30.             102       601.         2.6                       8  35.
       5     4099.       6.3                   12  30.             103       518.         1.9                       8  25.
       6     4036.       5.5                   12  25.             104       408.         2.6                       8  25.
       7      615.       3.6                    8  30.             105        79.         1.2                       8  15.
       8     9148.       (DIRECT FLOW)          9  25.             106        55.         1.0                       8  25.
       9      303.       2.3                    8  30.             107       378.         2.4                       8  35.
      10      157.        .8                    8  20.             108        58.          .8                       8  30.
      11      159.       1.0                    8  10.             109       300.         1.9                       8  35.
      12      137.        .9                    8  20.             110       211.         1.7                       8  30.
      13      458.       1.5                    8  20.             111        60.          .8                       8  30.
      14      160.        .9                    8  10.             112       105.         1.2                       8  30.
      15     7524.       (DIRECT FLOW)         10   0.             113        51.          .8                       8  30.
      16     7499.       (DIRECT FLOW)         10   0.             114        20.          .5                       8  20.
      17      755.       2.2                    8  30.             115        35.          .7                       8  25.
      18      478.       2.5                    8  30.             116        80.         1.2                       8  35.
      20      114.       1.1                    8  20.             117       132.         1.7                       8  20.
      21      147.       1.2                    8  30.             118        85.         1.2                       8  30.
      22     1730.       4.0                    8  45.             119       165.         2.1                       8  25.
      23      825.       3.5                    8  50.             120        78.         1.2                       8  15.
      24      660.       3.1                    8  40.             121       151.         1.5                       8  35.
      25      178.       1.2                    8  30.             122       477.         2.0                       8  50.
      26      452.       2.8                    8  30.             123       266.         1.5                       8  40.
      27       44.        .4                    8  25.             124       141.         1.3                       8  35.
      28      347.       1.5                    8  30.             125        34.          .6                       8  30.
      29       87.       1.0                    8  25.             126        24.          .5                       8  30.
      30      192.       1.2                    8  35.             127       104.          .9                       8  30.
      31      198.       1.5                    8  35.             128        95.          .8                       8  35.
      32       40.        .6                    8  30.             129      4091.         6.1                       9  50.
      33      141.       1.2                    8  30.             130       367.         1.7                       8  40.
      34      278.       1.9                    8  45.             131        85.          .8                       8  15.
      35       93.        .8                    8  25.             132        49.          .8                       8  30.
      36      119.        .9                    8  40.             133       225.         1.5                       8  45.
      37      265.       2.0                    8  45.             134       157.         1.3                       8  35.
      38       59.        .5                    8  25.             135        16.          .4                       8  25.
      39      162.       1.1                    8  30.             136        25.          .6                       8  10.
      40     7225.       7.8                   10   5.             137      3876.         4.7                       9  45.
      41      119.        .8                    8  25.             138       128.         1.2                       8  40.
      42     7156.       7.1                   10   0.             139      3761.         4.6                       9  40.
      44     8238.       (DIRECT FLOW)         10  30.             140       378.         1.9                       8  45.
      46     6679.       7.7                   10   0.             141        83.         1.1                       8  30.
      48     7915.       9.0                    9   5.             142       268.         1.8                       8  40.
      49      380.       1.6                    8  10.             143       102.         1.1                       8  30.
      50     7883.       6.2                    8  55.             144        39.          .7                       8  15.
      51      701.       3.1                    8  15.             145        17.          .6                       8  30.
      52     6888.       7.3                    8  50.             146       146.         1.2                       8  40.
      53      182.       1.9                    8  10.             147        53.          .7                       8  35.
      54       59.       1.0                    8  10.             148        59.          .8                       8  15.
      55       73.       1.1                    8  15.             149      3534.         4.3                       9  40.
      56     1033.       2.7                    8  25.             150        50.          .8                       8  20.
      57      497.       1.5                    8  20.             151       113.         1.2                       8  30.
      58       51.        .9                    8  10.             152      3439.         4.5                       9  35.
      59     6609.       7.6                   10   0.             153        43.          .5                       8  30.
      60      116.       1.0                    8  30.             154      3466.         4.8                       9  20.
      61      304.       2.1                    8  45.             155        51.          .4                       8  30.
      62      642.       2.1                    8  45.             156      3406.         4.8                       9  15.
      63       47.        .8                    8  40.             157      3188.         4.8                       9  10.
      64       49.       1.2                    8  30.             158       231.         1.2                       8  35.
      65      317.       2.9                    8  45.             159        37.          .5                       8  20.
      66       32.        .5                    8  25.             160       138.         1.1                       8  30.
      67      263.       1.7                    8  35.             161        57.          .9                       8  30.
      68      358.       1.8                    8  30.             162        31.          .6                       8  15.
      69      123.       1.0                    8  25.             163       216.         1.1                       8  35.
      70      184.       1.2                    8  25.             164        30.          .4                       8  30.
      71      335.       2.0                    8  40.             165       105.         1.0                       8  30.
      72      117.       1.1                    8  30.             166       162.         1.1                       8  35.
      73      103.       1.2                    8  35.             167        48.          .7                       8  30.
      74     6431.       7.4                    9  55.             168        22.          .5                       8  10.
      75     1217.       4.2                    9   5.             169        15.          .4                       8  10.
      76      192.       1.4                    8  35.             170       160.         1.4                       8  30.
      77     1406.       3.8                    9  10.             171       100.         1.0                       8  25.
      78       37.        .6                    8  35.             172      2831.         5.3                       9  10.
      79     1179.       3.4                    9   5.             173      1054.         2.1                       8  45.
      80      903.       1.9                    8  45.             174        59.          .8                       8  25.
      81      357.       1.8                    8  50.             175       878.         2.0                       8  40.
      82      185.       1.2                    8  40.             176       766.         2.6                       8  40.
      83       31.        .6                    8  30.             177        98.         1.0                       8  35.
      84      127.       1.1                    8  35.             178        43.          .8                       8  20.
      85       26.        .9                    8  30.             179        76.          .4                       8  30.
      86       76.        .9                    8  35.             180       411.         2.2                       8  30.
      87      221.       1.7                    8  50.             181        38.          .7                       8  10.
      88      195.       1.1                    8  45.             182       226.         1.3                       8  25.
      89      127.       1.5                    8  45.             183        46.          .7                       8  15.
      93       12.        .4                    8  10.             184       150.          .9                       8  20.
      94     5203.       5.7                   10   0.             185        34.          .8                       8  20.
      95     4447.       5.2                   10   0.             186        97.          .9                       8  15.
      96     4412.       7.3                    9  55.             187      1984.         3.8                       9  20.
      97     1517.       3.9                    8  45.             192      1972.         3.7                       9   0.
      98      200.       1.5                    8  25.             193       182.          .6                       8  20.
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   194      656.    2.1                  8   40.
   195       21.     .4                  8   25.
   196       27.     .6                  8   10.
   198      507.    2.0                  8   35.
   199       49.     .8                  8   30.
   200       44.     .7                  8   20.
   201      431.    1.8                  8   25.
   202       22.     .5                  8   10.
   203      105.    1.0                  8   10.
   204      318.    1.4                  8   20.
   205     1354.    3.4                  9    0.
   206       23.     .2                  8   10.
   207     1332.    2.8                  8   50.
   208       25.     .4                  8   20.
   211     1320.    3.7                  8   35.
   212      327.    1.4                  8   30.
   213      208.    1.2                  8   25.
   214      111.     .8                  8   15.
   215      981.    2.9                  8   30.
   216      148.     .7                  8   15.
   217       22.     .2                  8    5.
   218      578.    3.0                  8   20.
   219      825.    2.6                  8   25.
   220      238.    1.2                  8   20.
   221       84.    1.0                  8   15.
   222      490.    2.7                  8   20.
   223      148.     .8                  8   20.
   224      341.    2.4                  8   15.
   225       79.    1.0                  8   10.
   226      130.     .6                  8   10.
   231     2378.    3.4                  8   35.
   232     2406.    (DIRECT FLOW)       12   10.
   233     2396.    4.3                 12   10.
   234      208.    2.8                  8   35.
   235      245.    1.1                  8   20.
   236     2406.    (DIRECT FLOW)       12   10.
   237     4972.    (DIRECT FLOW)       11   40.
   238     4972.    (DIRECT FLOW)       11   40.
   239      245.    (DIRECT FLOW)        8   20.
   240     4769.    4.0                 11   40.
   241     4835.    3.8                 11   20.
   242     5049.    (DIRECT FLOW)       10   55.
   243     3929.    3.5                 10   40.
   244     1385.    3.1                  8   20.
   245     5962.    7.4                  8   45.
   246     2497.    4.4                  8   30.
   247      842.    2.3                  8   25.
   248      704.    2.0                  8   25.
   249      457.    1.8                  8   20.
   250     1192.    3.2                  8   25.
   251     2399.    (DIRECT FLOW)       11   40.
   252     2303.    (DIRECT FLOW)       12   10.
   261     8238.    (DIRECT FLOW)       10   30.
   262     5374.    2.9                 10   40.
   263     5374.    (DIRECT FLOW)       10   40.
   264     5119.    2.9                 10   45.
   265     5119.    (DIRECT FLOW)       10   45.
   266      231.    (DIRECT FLOW)       10   40.
   267     3347.    (DIRECT FLOW)       10   45.
   268     3294.     .1        53.3     10   55.
   269     2237.    (DIRECT FLOW)       10   45.
   270     6320.    8.2                 12   50.
   271     6390.    (DIRECT FLOW)       12   35.
   280     2312.    (DIRECT FLOW)       10   45.
   289     1113.    6.0                 11   20.
   290      872.    5.3                 11    0.
   291     3294.    (DIRECT FLOW)       10   55.
   292     2420.    3.3                 11    0.
   293      467.    9.2                 10   50.
   294     2312.    (DIRECT FLOW)       10   45.
   295     1783.     .1        89.2     11    5.
   296     1783.    (DIRECT FLOW)       11    5.
   297      902.    4.6                  8   10.
   298      127.     .1         2.8      8   25.
   299      191.     .9                  8   10.
   300       11.     .1        24.6     10   35.
   301      435.    1.0                  8   10.
   303      201.    (DIRECT FLOW)        8   10.
   304       78.    1.5                  8   25.
   308      334.    (DIRECT FLOW)       11   30.
   310      467.    (DIRECT FLOW)       11   40.
   311      681.    (DIRECT FLOW)        8   20.
   312      587.    5.6                 11   45.
   313      541.    (DIRECT FLOW)       11   35.
   314      334.    5.7                 11   30.
   315      458.    1.7                 11   50.
   316      103.    1.0                  8   10.
   317      461.    (DIRECT FLOW)       11   50.
   318      211.    3.2                  8   35.
   319     4066.    7.9                 12   35.
   320     1406.    2.6                 12   10.
   321     1322.    2.6                 11   55.
   322     3924.    (DIRECT FLOW)       12    5.
   323     1424.    (DIRECT FLOW)       11   50.
   324     2229.    (DIRECT FLOW)       11   50.
   325     2229.    (DIRECT FLOW)       11   50.
   326     1719.    7.3                 11   50.
   327     1257.    6.6                 11   45.
   328     1548.    (DIRECT FLOW)       11   40.
   329      690.    5.5                 11   45.
   330      693.    (DIRECT FLOW)       11   40.
   331      869.    (DIRECT FLOW)       11   35.
   332     1074.    (DIRECT FLOW)       11   40.
   333      511.    1.9                 11   40.
   334      568.    2.0                 11   35.
   335      866.    4.0                 11   40.
   336      414.    (DIRECT FLOW)       11   40.
   337      859.    2.3                 11   40.
   338      103.    1.8                  8   25.
   339      621.    (DIRECT FLOW)       11   35.
   340     1621.    (DIRECT FLOW)       11   30.
   341     2203.    (DIRECT FLOW)       11   25.
   342     3152.    (DIRECT FLOW)       11   25.
   343     3856.    (DIRECT FLOW)       11   25.
   344      170.    (DIRECT FLOW)        8   15.
   345      377.    1.6                  8   10.
   346      210.    1.1                  8    5.
   347     3857.    7.3                 11   25.
   348     1098.    (DIRECT FLOW)       11   35.
   349       12.     .3                  8   25.
   350      147.    3.2                  8   10.
   351     2281.    5.7                 11   20.
   352     3872.     .1        23.0     11   15.
   353       89.    1.1                  8   10.
   354     1584.    3.0                 11   25.
   355       19.    2.2                  8   10.
   356     3856.     .1        20.8     11   25.
   357      583.    (DIRECT FLOW)        8   25.
   358      687.    4.6                  8   25.
   359     3868.    (DIRECT FLOW)       11   25.
   360     3887.    (DIRECT FLOW)       11   10.
   361       79.    (DIRECT FLOW)        8    5.
   362      704.    (DIRECT FLOW)       11   25.
   363       15.     .5                  8   10.
   366      170.    1.2                  8   15.
   367       69.     .8                  8   10.
   368      167.    (DIRECT FLOW)        8   10.
   369       57.     .8                  8    5.
   370      158.    (DIRECT FLOW)        8    5.
   371      254.    2.0                  8   20.
   372      112.    (DIRECT FLOW)        8   15.
   373       26.    1.2                  8   30.
   374       36.    1.4                 10   55.
   375      231.    (DIRECT FLOW)       10   45.
   376      231.    3.8                 10   45.
   377      109.    3.1                 11   30.
   378      353.    (DIRECT FLOW)       11    5.
   379      198.    (DIRECT FLOW)        8   15.
   380      198.    4.0                  8   15.
   381      285.    (DIRECT FLOW)       11   10.
   382      285.    5.9                 11   10.
   383     1757.    (DIRECT FLOW)       11   10.
   384      187.    4.0                  8   10.
   385      369.    (DIRECT FLOW)       11   35.
   386      850.    (DIRECT FLOW)       11   35.
   387      127.    (DIRECT FLOW)       11   50.
   388      848.    (DIRECT FLOW)        8   45.
   389     2573.    (DIRECT FLOW)       11   40.
   390     1051.    (DIRECT FLOW)        8   45.
   391      894.    6.6                 12    0.
   392      895.    (DIRECT FLOW)       11   55.
   393      687.    (DIRECT FLOW)        8   25.
   394      596.    2.1                 11   35.
   395      598.    (DIRECT FLOW)       11   35.
   396      703.    (DIRECT FLOW)       11   30.
   397     4029.     .1      1783.9     12   20.
   398      703.     .1         3.7     11   30.
   399     6320.    (DIRECT FLOW)       12   50.
  1238      203.    (DIRECT FLOW)        8   45.
  1262     4259.    (DIRECT FLOW)       10   35.
  1267     2881.    (DIRECT FLOW)       10   45.
  1289      243.    (DIRECT FLOW)       11   10.
  1290      870.    (DIRECT FLOW)       10   55.
  1291     3294.    (DIRECT FLOW)       10   55.
  1293      467.    (DIRECT FLOW)       10   45.
  1294     2225.    2.7                 10   45.
  1295     1845.    (DIRECT FLOW)       10   50.
  1296     1783.    (DIRECT FLOW)       11    5.
  1301      866.    (DIRECT FLOW)       11   40.
  1302      866.    (DIRECT FLOW)       11   40.
  1303      633.    (DIRECT FLOW)       11   40.
  1304      233.    (DIRECT FLOW)       11   40.
  1305     1247.    (DIRECT FLOW)       11   40.
  1306       60.    (DIRECT FLOW)       11   45.
  1307     1014.    (DIRECT FLOW)       11   40.
  1308     1074.    (DIRECT FLOW)       11   40.
  1309     1548.    (DIRECT FLOW)       11   40.
  1310      207.    (DIRECT FLOW)       11   40.
  1311     1264.    (DIRECT FLOW)       11   40.
  1312      285.    (DIRECT FLOW)       11   40.
  1313      207.    (DIRECT FLOW)       11   35.
  1320     1404.    (DIRECT FLOW)       12    5.
  1321     1329.    (DIRECT FLOW)       11   50.
  1323     1424.    (DIRECT FLOW)       11   50.
  1325      552.    (DIRECT FLOW)        8   30.
  1329       80.     .9                  8   10.
  1330      277.    3.3                 11   55.
  1331      618.    (DIRECT FLOW)       11   35.
  1332      277.    (DIRECT FLOW)       11   55.
  1333      523.    (DIRECT FLOW)       11   30.
  1334      583.    (DIRECT FLOW)       11   25.
  1335      949.    (DIRECT FLOW)       11   25.
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1336       414.     (DIRECT FLOW)      11  40.
1337      1322.     (DIRECT FLOW)      11  55.
1338       604.     (DIRECT FLOW)      11  55.
1339        26.     (DIRECT FLOW)       8  20.
1340      1621.     (DIRECT FLOW)      11  30.
1341      2203.     (DIRECT FLOW)      11  25.
1342      3152.     (DIRECT FLOW)      11  25.
1343      3856.     (DIRECT FLOW)      11  25.
1348      1098.     (DIRECT FLOW)      11  35.
1357       583.     (DIRECT FLOW)       8  25.
1360      1503.     (DIRECT FLOW)      11  15.
1361       601.     3.3                11  55.
1362       704.     (DIRECT FLOW)      11  25.
1363       718.     (DIRECT FLOW)      11  55.
1364       705.     3.5                12   5.
1365       974.     (DIRECT FLOW)      12   0.
1366       128.     (DIRECT FLOW)      11  15.
1367        14.     (DIRECT FLOW)       8  20.
1368       277.     (DIRECT FLOW)      11  55.
1369       272.     (DIRECT FLOW)      11  55.
1370       269.     3.1                12   0.
1371         4.     (DIRECT FLOW)      11  55.
1372       620.     (DIRECT FLOW)      12   5.
1373       972.     (DIRECT FLOW)      12   5.
1374        36.     (DIRECT FLOW)      10  45.
1375       354.     (DIRECT FLOW)      12   5.
1376       353.     3.5                12   5.
1377       618.     (DIRECT FLOW)      12   5.
1378       353.     (DIRECT FLOW)      11   5.
1381       285.     (DIRECT FLOW)      11  10.
1382        31.     (DIRECT FLOW)      11   5.
1383      1752.     (DIRECT FLOW)      11  10.
1386       850.     (DIRECT FLOW)      11  35.
1387       127.     (DIRECT FLOW)      11  50.
1392       806.     (DIRECT FLOW)      11  50.
1393       104.     (DIRECT FLOW)       8  30.
1396       703.     (DIRECT FLOW)      11  30.
1401        32.     (DIRECT FLOW)       8  25.
1402      1424.     (DIRECT FLOW)      11  50.
1403       103.     (DIRECT FLOW)      12  10.
1404       195.     (DIRECT FLOW)      10  45.
1405       253.     (DIRECT FLOW)      11  10.
1406       184.     (DIRECT FLOW)       8  15.
1407       251.     (DIRECT FLOW)      11  35.
1408       144.     (DIRECT FLOW)       8  15.
1409       260.     (DIRECT FLOW)      11  40.
1410        57.     (DIRECT FLOW)       8  10.
1411      6698.     5.9                 9  50.
1412      6698.     (DIRECT FLOW)       9  50.
1413      6698.     (DIRECT FLOW)       9  50.
1414      4577.     (DIRECT FLOW)       9  55.
1415        94.     (DIRECT FLOW)       8  10.
1416       867.     3.4                 8  45.
1420       103.     (DIRECT FLOW)       8  15.
1421      9200.     6.8                 9  40.
1423      9200.     (DIRECT FLOW)       9  40.
1424      6868.     (DIRECT FLOW)       9  40.
1425        18.     (DIRECT FLOW)       8   0.
1426        75.     1.2                 8  20.
1427      3979.     (DIRECT FLOW)      10  30.
1428      2321.     3.0                 9  50.
1429      2798.     (DIRECT FLOW)       9  45.
1430        28.     (DIRECT FLOW)       8  10.
1431        25.      .8                 8  15.
1435        56.     (DIRECT FLOW)       8  10.
1436        46.     1.3                 8  15.
1438        71.     (DIRECT FLOW)       8  15.
1440        60.     (DIRECT FLOW)       8  15.
1441      9176.     6.9                 9  35.
1442      1127.     2.1                10  35.
1445        52.     (DIRECT FLOW)       8   5.
1446        41.     1.1                 8  20.
1450        58.     (DIRECT FLOW)       8  15.
1451      9435.     6.5                 9  25.
1453      9455.     (DIRECT FLOW)       9  25.
1455       230.     (DIRECT FLOW)       8  10.
1456       195.      .7                 8  25.
1457       195.     (DIRECT FLOW)       8  25.
1460       135.     (DIRECT FLOW)       8   5.
1461       118.     2.0                 8  10.
1465       117.     (DIRECT FLOW)       8  10.
1467       382.     (DIRECT FLOW)       8  20.
1468       379.     2.4                 8  25.
1480      1021.     3.5                 8  15.
1481         8.      .0         143.1  24  40.
1482         8.     (DIRECT FLOW)      24  20.
1490       314.     (DIRECT FLOW)       8  10.
1491       264.     2.8                 9  10.
1500       440.     (DIRECT FLOW)       8  10.
1501       338.     2.8                 8  35.
1505       429.     (DIRECT FLOW)       8  10.
1506      2123.     3.6                10  45.
1507      8173.     (DIRECT FLOW)      10  25.
1508      6106.     (DIRECT FLOW)      10  20.
1509      2121.     (DIRECT FLOW)       9  50.
1510        93.     (DIRECT FLOW)       8  15.
1511      7257.     5.1                10  20.
1512      8139.     5.9                10  30.
1513      7257.     (DIRECT FLOW)      10  20.
1514      1151.     (DIRECT FLOW)      10  20.
1515        31.     (DIRECT FLOW)       8   5.
1517        64.     1.1                 8  55.
1520       176.     (DIRECT FLOW)       8  10.
1521      7373.     4.9                10   5.
1522      7468.     (DIRECT FLOW)      10  10.
1525        98.     (DIRECT FLOW)       8  10.
1526      2790.     3.6                 9  50.
1528      2332.     (DIRECT FLOW)       9  45.
1530       187.     (DIRECT FLOW)       8  10.
1531       522.     2.3                 8  40.
1532      2999.     (DIRECT FLOW)       9  45.
1533      7442.     (DIRECT FLOW)      10   0.
1534      4537.     3.5                10   5.
1537      2991.     3.8                 9  50.
1541       303.     (DIRECT FLOW)       8  10.
1542       204.     2.1                 8  30.
1544      7443.     (DIRECT FLOW)      10   5.
1545       216.     (DIRECT FLOW)       8  15.
1546       392.     2.3                 8  35.
1548      7431.     3.1                10  10.
1550       534.     (DIRECT FLOW)       8  15.
1551       671.     2.6                 8  35.
1553       852.     (DIRECT FLOW)       8  35.
1556        89.     (DIRECT FLOW)       8  15.
1557       181.     2.1                 8  35.
1560       178.     (DIRECT FLOW)       8  10.
1561       178.     1.6                 8  15.
1563       304.     (DIRECT FLOW)       8  15.
1565       126.     (DIRECT FLOW)       8  10.
1566       126.     1.3                 8  15.
1570       134.     (DIRECT FLOW)       8  15.
1571       133.      .6                 8  20.
1575       340.     (DIRECT FLOW)       8  10.
1576       274.     2.5                 8  25.
1599      7517.     (DIRECT FLOW)      12  30.
1600         8.     (DIRECT FLOW)       8   0.
1601      8487.     5.5                 9  20.
1603      9605.     (DIRECT FLOW)       9  15.
1605        93.     (DIRECT FLOW)       8  15.
1606       723.     2.7                 8  20.
1610        66.     (DIRECT FLOW)       8  15.
1611      8277.     5.3                 9  15.
1615       123.     (DIRECT FLOW)       8  15.
1616       103.     1.7                 8  25.
1620       155.     (DIRECT FLOW)       8  15.
1621      1278.     4.0                 8  40.
1623      1363.     (DIRECT FLOW)       8  40.
1624      1369.     4.0                 8  45.
1625       373.     (DIRECT FLOW)       8  10.
1626      8141.     5.6                 9  10.
1628      8482.     (DIRECT FLOW)       9   5.
1630       185.     (DIRECT FLOW)       8  15.
1631       506.     2.1                 8  35.
1635       433.     (DIRECT FLOW)       8  10.
1636       414.     2.0                 8  15.
1640       335.     (DIRECT FLOW)       8  10.
1641       225.     3.4                 8  30.
1643       367.     (DIRECT FLOW)       8  25.
1645       161.     (DIRECT FLOW)       8  15.
1646       146.     1.5                 8  25.
1650       644.     (DIRECT FLOW)       8  10.
1651       898.     3.4                 8  20.
1653      1379.     (DIRECT FLOW)       8  25.
1655       568.     (DIRECT FLOW)       8  15.
1656       501.     2.7                 8  30.
1660       427.     (DIRECT FLOW)       8  15.
1661       363.     2.4                 8  25.
1665       795.     (DIRECT FLOW)       8   5.
1666       719.     2.7                 8  15.
1705        20.     (DIRECT FLOW)       8  10.
1710       106.     (DIRECT FLOW)       8  15.
1711        95.     1.1                 8  35.
1712      1462.     (DIRECT FLOW)       8  45.
1715        91.     (DIRECT FLOW)       8  15.
1716        60.      .9                 8  50.
1800      2413.     (DIRECT FLOW)       9  50.
1812      3872.     (DIRECT FLOW)      11  15.
1813      3872.     (DIRECT FLOW)      11  15.
1814      2286.     (DIRECT FLOW)      11  15.
1815      1586.     (DIRECT FLOW)      11  20.
1816      1579.     3.4                11  25.
1817      1579.     (DIRECT FLOW)      11  25.
1818        25.      .9                 8   0.
1820      1757.     (DIRECT FLOW)      11  10.
1821       204.     (DIRECT FLOW)       8  10.
1822       621.     (DIRECT FLOW)      11  35.
1905      5142.     (DIRECT FLOW)      10  40.
1906      2536.     1.2                11  55.
1907       824.     2.6                 8  55.
1908       120.     2.1                12  20.
1909      3924.     (DIRECT FLOW)      12   5.
1910       281.     (DIRECT FLOW)      11  35.
1911      1061.     (DIRECT FLOW)       8  40.
1912      1051.     6.4                 8  45.
1913      3850.     (DIRECT FLOW)      11  20.
1914      3845.     6.3                11  25.
1915      3850.     (DIRECT FLOW)      11  25.
1916      4248.     3.0                10  35.
1917        48.     1.1                 8  25.
1919      3880.     (DIRECT FLOW)      11  15.
1920       922.     5.4                 8  15.
1921       942.     (DIRECT FLOW)       8  10.
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1922        11.         .3                  10  30.
1923      2424.        (DIRECT FLOW)        11   0.
1924      1115.        (DIRECT FLOW)        11   5.
1925       109.        (DIRECT FLOW)        11   5.
1926       157.        (DIRECT FLOW)        11  10.
1927       203.        3.6                   8  55.
1928      8509.        (DIRECT FLOW)         9  15.
1929      1448.        3.1                   8  45.
1931       308.        (DIRECT FLOW)         9   0.
1932       113.        1.0                   8  15.
1933       308.        2.5                   9   0.
1934      3877.        4.1                  11  15.
1935      5375.        (DIRECT FLOW)        10  35.
1937       480.        (DIRECT FLOW)        11  35.
1938      1035.        (DIRECT FLOW)         8  10.
1939       541.        (DIRECT FLOW)        11  35.
1940       587.        (DIRECT FLOW)        11  40.
1941       103.        1.0                   8  30.
1942       207.        (DIRECT FLOW)        11  40.
1943      3907.        7.0                  12  10.
1944       972.        6.4                  12   5.
1945       972.        (DIRECT FLOW)        12   5.
1946      4260.        (DIRECT FLOW)        12  10.
1947      7517.        (DIRECT FLOW)        12  30.
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UDSWMM

500-YEAR MODEL

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URBAN DRAINAGE STORM WATER MANAGEMENT MODEL -  32 BIT VERSION 1998
         REVISED BY UNIVERSITY OF COLORADO AT DENVER

 *** ENTRY MADE TO RUNOFF MODEL ***

 sbc_ltd.swi
 500-year model

0NUMBER OF TIME STEPS  865
0INTEGRATION TIME INTERVAL (MINUTES)    5.00

  1.0 PERCENT OF IMPERVIOUS AREA HAS ZERO DETENTION DEPTH
0FOR   288 RAINFALL STEPS, THE TIME INTERVAL IS    5.00 MINUTES
0FOR RAINGAGE NUMBER   1   RAINFALL HISTORY IN INCHES PER HOUR

           .05       .05       .05       .05       .05       .05       .05       .06       .06       .06
           .06       .06       .06       .06       .06       .06       .06       .06       .06       .07
           .07       .07       .07       .07       .07       .07       .07       .07       .08       .08
           .08       .08       .08       .08       .08       .09       .09       .09       .09       .09
           .09       .10       .10       .10       .10       .10       .11       .11       .11       .11
           .12       .12       .12       .12       .13       .13       .13       .14       .14       .15
           .15       .15       .16       .16       .17       .18       .18       .19       .20       .20
           .21       .22       .23       .24       .25       .27       .28       .30       .32       .34
           .37       .40       .44       .48       .53       .59       .67       .78       .91      1.08
          1.33      1.68      2.21      3.04      4.35      5.46      5.14      3.63      2.58      1.92
          1.49      1.20       .99       .84       .72       .63       .56       .50       .46       .42
           .38       .36       .33       .31       .29       .28       .26       .25       .24       .23
           .22       .21       .20       .19       .18       .18       .17       .17       .16       .16
           .15       .15       .14       .14       .14       .13       .13       .13       .12       .12
           .12       .11       .11       .11       .11       .10       .10       .10       .10       .10
           .09       .09       .09       .09       .09       .09       .08       .08       .08       .08
           .08       .08       .08       .08       .07       .07       .07       .07       .07       .07
           .07       .07       .07       .06       .06       .06       .06       .06       .06       .06
           .06       .06       .06       .06       .05       .05       .05       .05       .05       .05
           .05       .05       .05       .05       .05       .05       .05       .05       .05       .05
           .05       .05       .05       .05       .05       .05       .05       .05       .05       .04
           .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
           .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
           .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
           .04       .04       .04       .04       .04       .04       .04       .04       .04       .04
           .04       .04       .04       .04       .04       .03       .03       .03       .03       .03
           .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
           .03       .03       .03       .03       .03       .03       .03       .03       .03       .03
           .03       .03       .03       .03       .03       .03       .03       .03
0FOR RAINGAGE NUMBER   2   RAINFALL HISTORY IN INCHES PER HOUR

           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .09       .09       .09       .09
           .09       .09       .09       .09       .09       .09       .09       .09       .09       .09
           .09       .09       .09       .09       .09       .09       .09       .09       .09       .09
           .10       .10       .10       .10       .10       .10       .10       .10       .10       .10
           .11       .11       .11       .11       .11       .11       .11       .12       .12       .12
           .12       .13       .13       .13       .14       .14       .14       .15       .15       .16
           .16       .17       .18       .19       .20       .21       .22       .24       .25       .27
           .29       .32       .35       .39       .44       .50       .57       .66       .78       .95
          1.18      1.50      1.99      2.75      3.91      4.78      4.58      3.28      2.33      1.72
          1.33      1.05       .86       .72       .61       .53       .46       .41       .37       .34
           .31       .28       .26       .24       .23       .21       .20       .19       .18       .18
           .17       .16       .16       .15       .15       .14       .14       .13       .13       .13
           .12       .12       .12       .12       .12       .11       .11       .11       .11       .11
           .11       .10       .10       .10       .10       .10       .10       .10       .10       .10
           .10       .10       .09       .09       .09       .09       .09       .09       .09       .09
           .09       .09       .09       .09       .09       .09       .09       .09       .09       .09
           .09       .09       .09       .09       .09       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
           .08       .08       .08       .08       .08       .08       .08       .08
0FOR RAINGAGE NUMBER   3   RAINFALL HISTORY IN INCHES PER HOUR

           .08       .08       .08       .09       .09       .09       .09       .09       .09       .09
           .09       .09       .09       .09       .09       .09       .09       .09       .09       .09
           .09       .09       .09       .09       .09       .09       .09       .09       .09       .10
           .10       .10       .10       .10       .10       .10       .10       .10       .10       .10
           .10       .11       .11       .11       .11       .11       .11       .11       .11       .12
           .12       .12       .12       .12       .13       .13       .13       .13       .14       .14
           .14       .15       .15       .15       .16       .16       .17       .17       .18       .19
           .20       .20       .21       .22       .24       .25       .26       .28       .30       .32
           .34       .37       .41       .45       .49       .55       .62       .70       .81       .95
          1.12      1.36      1.69      2.17      2.92      4.23      3.47      2.51      1.91      1.51
          1.23      1.03       .87       .75       .66       .58       .52       .47       .43       .39
           .36       .33       .31       .29       .27       .26       .24       .23       .22       .21
           .20       .19       .18       .18       .17       .17       .16       .16       .15       .15
           .14       .14       .14       .13       .13       .13       .13       .12       .12       .12
           .12       .12       .12       .11       .11       .11       .11       .11       .11       .11
           .10       .10       .10       .10       .10       .10       .10       .10       .10       .10
           .10       .10       .10       .09       .09       .09       .09       .09       .09       .09
           .09       .09       .09       .09       .09       .09       .09       .09       .09       .09
           .09       .09       .09       .09       .09       .09       .09       .09       .09       .08
           .08       .08       .08       .08       .08       .08       .08       .08       .08       .08
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         .08        .08        .08        .08        .08        .08        .08        .08        .08        .08
         .08        .08        .08        .08        .08        .08        .08        .08        .08        .08
         .08        .08        .08        .08        .08        .08        .08        .08        .08        .08
         .08        .08        .08        .08        .08        .08        .08        .08        .08        .08
         .08        .08        .08        .08        .08        .08        .08        .08        .08        .08
         .08        .08        .08        .08        .08        .08        .08        .08        .08        .08
         .08        .08        .08        .08        .08        .08        .08        .08        .08        .08
         .08        .08        .08        .08        .08        .08        .08        .08        .08        .08
         .08        .08        .08        .08        .08        .08        .08        .08
0FOR RAINGAGE NUMBER    4   RAINFALL HISTORY IN INCHES PER HOUR

         .09        .09        .09        .09        .09        .09        .09        .09        .09        .09
         .09        .09        .09        .09        .10        .10        .10        .10        .10        .10
         .10        .10        .10        .10        .10        .10        .11        .11        .11        .11
         .11        .11        .11        .11        .11        .12        .12        .12        .12        .12
         .12        .12        .12        .13        .13        .13        .13        .13        .13        .14
         .14        .14        .14        .14        .15        .15        .15        .16        .16        .16
         .16        .17        .17        .17        .18        .18        .19        .19        .20        .20
         .21        .22        .23        .23        .24        .25        .27        .28        .29        .31
         .33        .35        .38        .41        .44        .49        .54        .61        .69        .79
         .93       1.13       1.40       1.82       2.54       4.12       3.14       2.13       1.59       1.25
        1.02        .86        .74        .64        .57        .51        .47        .43        .39        .37
         .34        .32        .30        .29        .27        .26        .25        .24        .23        .22
         .21        .21        .20        .20        .19        .19        .18        .18        .17        .17
         .17        .16        .16        .16        .15        .15        .15        .15        .14        .14
         .14        .14        .14        .13        .13        .13        .13        .13        .13        .12
         .12        .12        .12        .12        .12        .12        .11        .11        .11        .11
         .11        .11        .11        .11        .11        .11        .10        .10        .10        .10
         .10        .10        .10        .10        .10        .10        .10        .09        .09        .09
         .09        .09        .09        .09        .09        .09        .09        .09        .09        .09
         .09        .09        .09        .08        .08        .08        .08        .08        .08        .08
         .08        .08        .08        .08        .08        .08        .08        .08        .08        .08
         .08        .08        .08        .08        .08        .08        .08        .08        .08        .08
         .08        .08        .08        .08        .08        .08        .08        .08        .08        .08
         .08        .07        .07        .07        .07        .07        .07        .07        .07        .07
         .07        .07        .07        .07        .07        .07        .07        .07        .07        .07
         .07        .07        .07        .07        .07        .07        .07        .07        .07        .07
         .07        .07        .07        .07        .07        .07        .07        .07        .07        .07
         .07        .07        .07        .07        .07        .07        .07        .07        .07        .06
         .06        .06        .06        .06        .06        .06        .06        .06
0FOR RAINGAGE NUMBER    5   RAINFALL HISTORY IN INCHES PER HOUR

         .04        .04        .04        .04        .04        .04        .05        .05        .05        .05
         .05        .05        .05        .05        .05        .05        .05        .05        .05        .05
         .06        .06        .06        .06        .06        .06        .06        .06        .06        .06
         .07        .07        .07        .07        .07        .07        .07        .07        .08        .08
         .08        .08        .08        .08        .09        .09        .09        .09        .09        .10
         .10        .10        .10        .11        .11        .11        .11        .12        .12        .12
         .13        .13        .13        .14        .14        .15        .15        .16        .16        .17
         .18        .18        .19        .20        .21        .22        .23        .24        .25        .27
         .28        .30        .32        .35        .38        .41        .45        .50        .57        .65
         .75        .90        .10        .41        .94       1.11       2.39       1.63       1.24        .99
         .82        .70        .61        .53        .48        .43        .39        .36        .34        .31
         .29        .27        .26        .25        .23        .22        .21        .20        .19        .19
         .18        .17        .17        .16        .15        .15        .14        .14        .14        .13
         .13        .12        .12        .12        .12        .11        .11        .11        .10        .10
         .10        .10        .09        .09        .09        .09        .09        .09        .08        .08
         .08        .08        .08        .08        .07        .07        .07        .07        .07        .07
         .07        .07        .06        .06        .06        .06        .06        .06        .06        .06
         .06        .06        .05        .05        .05        .05        .05        .05        .05        .05
         .05        .05        .05        .05        .05        .04        .04        .04        .04        .04
         .04        .04        .04        .04        .04        .04        .04        .04        .04        .04
         .04        .04        .04        .04        .04        .04        .04        .04        .04        .04
         .04        .04        .04        .04        .04        .04        .04        .04        .03        .03
         .03        .03        .03        .03        .03        .03        .03        .03        .03        .03
         .03        .03        .03        .03        .03        .03        .03        .03        .03        .03
         .03        .03        .03        .03        .03        .03        .03        .03        .03        .03
         .03        .03        .03        .03        .03        .03        .03        .03        .03        .03
         .03        .03        .03        .03        .03        .03        .03        .03        .03        .03
         .03        .03        .03        .03        .03        .03        .03        .03        .03        .02
         .02        .02        .02        .02        .02        .02        .02        .02
1


  sbc_1td.swi
  500-year model



  SUBAREA   GUTTER    WIDTH     AREA    PERCENT     SLOPE    RESISTANCE FACTOR  SURFACE STORAGE(IN)     INFILTRATION RATE(IN/HR)   GAGE
  NUMBER  OR MANHOLE   (FT)     (AC)    IMPERV.    (FT/FT)     IMPERV.    PERV.     IMPERV.    PERV.    MAXIMUM MINIMUM DECAY RATE   NO
   227       226      7480.    286.0     30.0      .4076       .300      .500      .300      .470      3.90     .50     .00024     5
   226       225      6240.    152.0     30.0      .5701       .300      .500      .300      .470      3.90     .50     .00024     5
   225       224      8440.    488.0     20.0      .3704       .300      .500      .300      .470      4.50     .60     .00010     5
   224       223     11920.    309.0     20.0      .2882       .300      .500      .300      .450      3.50     .20     .00100     5
   222       221     13040.    250.0     20.0      .5139       .300      .500      .300      .450      3.90     .50     .00024     5
   221       220     15160.    506.0     20.0      .4510       .300      .500      .300      .450      3.50     .20     .00100     5
   219       218      3320.     44.0      6.0      .2945       .300      .500      .300      .470      3.90     .50     .00024     5
   220       219     10200.    437.0      5.0      .3544       .300      .500      .300      .480      4.50     .60     .00010     5
   223       222      2280.    182.0      6.0      .4444       .300      .500      .300      .470      4.80     .50     .00010     5
   214       216     16320.    505.0     20.0      .4409       .300      .500      .300      .450      3.90     .50     .00024     5
   212       214     13760.    482.0     15.0      .4325       .300      .500      .300      .450      3.90     .50     .00024     5
   211       213     11800.    511.0     20.0      .3390       .300      .500      .300      .440      3.50     .20     .00100     5
   210       212     12200.    588.0      5.0      .2915       .300      .500      .300      .420      4.80     .50     .00010     5
   213       215      6480.    539.0      6.0      .3847       .300      .400      .150      .420      3.90     .50     .00024     5
   215       217      9720.    245.0      5.0      .2985       .250      .450      .300      .500      3.90     .50     .00024     5
   209       211      6800.    284.0      6.0      .4718       .300      .400      .150      .460      3.90     .50     .00024     5
   185       186      8520.    461.0     15.0      .2842       .300      .500      .300      .450      4.80     .50     .00010     5
   184       185      7440.    232.0      8.0      .3661       .300      .500      .300      .400      3.90     .50     .00024     5
   182       183     16000.    599.0      6.0      .1690       .300      .500      .300      .450      4.50     .60     .00010     5
   180       181     13280.    438.0      6.0      .2725       .300      .500      .300      .450      4.50     .60     .00010     5
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183   184    7080.  217.0   6.0  .2820  .300  .500  .300  .400  3.90  .50  .00024  5
181   182    9200.  507.0   7.0  .2836  .300  .500  .300  .450  4.50  .60  .00010  5
179   180    9040.  501.0   5.0  .2840  .250  .450  .300  .500  3.50  .20  .00100  4
204   204   13440.  854.0  30.0  .3985  .300  .500  .300  .470  3.90  .50  .00024  5
203   203    7000.  258.0  25.0  .4793  .300  .500  .300  .470  3.90  .50  .00024  5
199   201   15400.  843.0   5.0  .3343  .300  .500  .300  .470  4.50  .60  .00010  5
198   200   14440.  542.0   5.0  .2842  .300  .500  .300  .450  3.90  .50  .00024  5
200   202    7640.  250.0   5.0  .2900  .300  .500  .300  .500  4.80  .50  .00010  5
196   198   14440.  797.0   5.0  .4198  .250  .450  .300  .450  3.90  .50  .00024  5
195   196   14640.  387.0   5.0  .2370  .250  .450  .300  .500  4.50  .60  .00010  5
197   199   18040.  634.0   5.0  .2744  .250  .450  .300  .450  3.90  .50  .00024  5
190   195    9520.  251.0   5.0  .2833  .250  .450  .300  .470  3.90  .50  .00024  5
189   194   15120.  847.0   9.0  .3487  .150  .400  .300  .500  4.50  .50  .00010  4
208   208    8520.  275.0   5.0  .3120  .250  .450  .300  .450  3.90  .50  .00024  5
207   207    8560.  772.0   6.0  .4592  .150  .400  .300  .430  3.50  .20  .00100  5
206   206    7720.  250.0   5.0  .3693  .250  .450  .300  .470  3.90  .50  .00024  5
205   205    9800.  395.0   7.0  .4113  .150  .400  .300  .450  3.90  .50  .00024  4
187   192    1540.  115.0   6.0  .5495  .150  .400  .300  .430  3.50  .20  .00100  4
188   193    8960.  273.0   9.0  .3629  .150  .400  .300  .400  3.50  .20  .00100  4
186   187   19200. 1018.0   8.0  .3200  .150  .400  .300  .450  3.90  .50  .00024  4
177   178   13000.  392.0   7.0  .2685  .150  .400  .300  .450  3.90  .50  .00024  5
178   179    7720.  211.0   5.0  .3191  .250  .450  .300  .420  3.50  .20  .00100  5
175   176   15040.  716.0   5.0  .3492  .250  .450  .300  .400  3.50  .20  .00100  4
176   177   12040.  233.0   6.0  .2396  .250  .450  .300  .450  3.90  .50  .00024  4
174   175    3800.   78.0   5.0  .2684  .250  .450  .300  .450  3.90  .50  .00024  4
173   174    8120.  188.0   8.0  .3071  .150  .400  .300  .430  3.90  .50  .00024  4
172   173   11520.  230.0   5.0  .3401  .250  .450  .300  .400  3.50  .20  .00100  4
171   172    3720.   73.0   7.0  .2083  .150  .400  .300  .450  3.90  .50  .00024  4
167   168    7240.  259.0   5.0  .2386  .300  .500  .300  .500  3.90  .50  .00024  5
168   169    6280.  175.0   5.0  .2720  .300  .500  .300  .500  3.90  .50  .00024  5
164   165   13840.  350.0   6.0  .3519  .300  .500  .300  .470  3.90  .50  .00024  4
166   167   10720.  215.0   6.0  .3188  .300  .500  .300  .500  3.90  .50  .00024  4
165   166    1040.   99.0   5.0  .2782  .300  .500  .300  .500  3.90  .50  .00024  4
170   171    8840.  139.0   5.0  .2244  .250  .450  .300  .400  3.50  .20  .00100  4
169   170    9680.  332.0   5.0  .2538  .250  .450  .300  .400  3.50  .20  .00100  4
162   163    5280.  112.0   5.0  .2935  .250  .450  .300  .470  3.90  .50  .00100  4
163   164    8000.   76.0   5.0  .3938  .300  .500  .300  .450  3.90  .50  .00024  4
156   157    1660.  103.0   7.0  .3821  .250  .450  .300  .460  3.50  .20  .00100  4
160   161    8760.  341.0   5.0  .3148  .300  .500  .300  .470  3.90  .50  .00100  4
161   162   11600.  362.0   5.0  .3269  .300  .500  .300  .470  3.90  .50  .00100  5
158   159   12760.  476.0   5.0  .2852  .300  .500  .300  .470  3.90  .50  .00100  5
159   160    6720.  342.0   6.0  .3021  .300  .500  .300  .470  3.90  .50  .00100  4
155   156    9960.  523.0   6.0  .3280  .250  .450  .300  .400  3.90  .50  .00024  4
157   158   11400.  344.0   5.0  .2728  .250  .450  .300  .460  3.90  .50  .00024  4
152   153    8760.  249.0   5.0  .2831  .300  .500  .300  .500  3.90  .50  .00024  4
153   154    5760.  249.0   6.0  .3299  .250  .450  .300  .450  3.90  .50  .00024  4
154   155    2180.  161.0   5.0  .3792  .300  .500  .300  .400  3.50  .20  .00100  4
148   149    6440.  214.0   6.0  .3001  .250  .450  .300  .400  3.50  .20  .00100  4
149   150    5560.   58.0   6.0  .1610  .250  .450  .300  .400  3.50  .20  .00100  4
150   151    8240.  189.0   5.0  .2338  .250  .450  .300  .400  3.50  .20  .00100  4
151   152   13960.  501.0   8.0  .3572  .250  .450  .300  .450  3.90  .50  .00024  4
145   146    6930.  318.0   5.0  .2782  .300  .500  .300  .460  3.90  .50  .00024  4
146   147   11200.  283.0   5.0  .2727  .250  .450  .300  .500  3.90  .50  .00024  4
147   148    5440.  453.0   5.0  .3306  .250  .450  .300  .470  3.90  .50  .00024  4
141   142    4160.  103.0   6.0  .2843  .250  .450  .300  .450  3.90  .50  .00024  4
142   143    9680.  187.0   5.0  .3565  .250  .450  .300  .470  3.90  .50  .00024  4
143   144    4400.  274.0   5.0  .3218  .300  .500  .300  .460  3.90  .50  .00024  4
144   145    4320.   79.0   5.0  .2164  .300  .500  .300  .500  3.90  .50  .00024  4
139   140    8640.  184.0   6.0  .3125  .250  .450  .300  .460  3.90  .50  .00024  4
140   141    7600.  132.0   5.0  .2104  .250  .450  .300  .450  3.50  .20  .00100  4
136   137    6200.  142.0  15.0  .2104  .150  .400  .150  .470  3.50  .20  .00100  4
137   138    8780.  383.0  10.0  .0823  .150  .400  .150  .420  3.50  .20  .00100  4
138   139    3760.   70.0  15.0  .1898  .250  .450  .150  .450  3.90  .50  .00024  4
133   134   20040.  530.0   8.0  .3229  .250  .450  .300  .460  3.90  .50  .00024  4
134   135    8160.  160.0   5.0  .2440  .250  .450  .300  .450  3.90  .50  .00024  5
135   136    6000.  282.0   5.0  .2300  .250  .450  .300  .460  3.90  .50  .00024  5
130   131    9720.  290.0  12.0  .3042  .150  .400  .150  .500  3.90  .50  .00024  4
131   132    9120.  213.0   8.0  .1964  .250  .450  .300  .470  3.90  .50  .00024  4
132   133   15440.  496.0   7.0  .1806  .250  .450  .300  .470  3.90  .50  .00024  4
128   129    7040.  151.0  12.0  .5988  .300  .500  .200  .450  3.90  .50  .00024  4
129   130    6720.  110.0  15.0  .2077  .150  .400  .150  .450  3.90  .50  .00024  4
124   125    7600.  220.0   5.0  .1948  .300  .500  .300  .500  3.90  .50  .00024  4
125   126    6840.   88.0   5.0  .2679  .300  .500  .300  .500  3.90  .50  .00024  4
126   127   16000.  548.0   8.0  .2341  .250  .450  .300  .480  3.90  .50  .00024  4
120   124   15040.  397.0  13.0  .1127  .150  .400  .150  .500  3.90  .50  .00024  4
127   128   17320.  472.0   8.0  .2160  .250  .450  .300  .470  3.90  .50  .00024  4
118   122   18880.  481.0   8.0  .2138  .150  .400  .200  .450  3.90  .50  .00024  4
119   123    8320.  389.0  12.0  .1613  .150  .400  .200  .450  3.90  .50  .00024  4
113   116   19040.  702.0   5.0  .1137  .300  .500  .300  .500  3.90  .50  .00024  4
 93    96   12640.  579.0   5.0  .2560  .250  .450  .300  .460  3.90  .50  .00024  4
230    95    8000.  200.0   5.0  .2312  .250  .450  .300  .450  3.90  .50  .00024  4
 88    85    3840.  118.0   5.0  .2369  .250  .450  .300  .400  3.90  .50  .00024  4
 89    86   11760.  331.0   5.0  .2521  .250  .450  .300  .400  3.90  .50  .00024  4
 90    87   16080.  655.0   5.0  .1364  .250  .450  .300  .400  3.50  .20  .00100  4
 84    81   12440.  303.0   5.0  .2148  .250  .450  .300  .400  3.50  .20  .00100  4
 85    82    2220.   96.0   5.0  .1143  .250  .450  .300  .400  3.50  .20  .00100  4
 86    83    4760.  197.0   5.0  .1438  .250  .450  .300  .400  3.90  .50  .00024  4
 87    84    5440.  106.0   5.0  .1919  .250  .450  .300  .400  3.90  .50  .00024  4
 83    80   31300.  862.0   9.0  .1050  .150  .400  .200  .400  3.50  .20  .00100  4
 74   121    9400.  326.0   6.0  .1923  .150  .400  .200  .400  3.50  .20  .00024  4
 70    79   16040.  633.0   7.0  .1589  .250  .450  .300  .400  3.50  .20  .00100  4
 61    75    3200.   62.0   5.0  .3363  .250  .450  .300  .400  3.90  .50  .00024  4
 63    76   12840.  379.0   8.0  .1972  .250  .450  .300  .400  3.50  .20  .00100  4
 65    77    4040.   66.0   8.0  .2100  .250  .450  .300  .430  3.90  .50  .00024  4
 66    78    7560.  256.0   5.0  .1250  .250  .450  .300  .450  3.90  .50  .00024  4
 58    74    9400.  411.0   8.0  .3384  .250  .450  .300  .400  3.50  .20  .00100  4
228    89    8480.  319.0   8.0  .1659  .150  .400  .150  .450  3.50  .20  .00100  4
229    93    4880.  111.0   5.0  .2059  .250  .450  .300  .450  4.50  .60  .00010  4
 91    88   16520.  352.0   6.0  .1576  .250  .450  .300  .450  3.90  .50  .00024  4
114   117   12000.  390.0  15.0  .1571  .150  .400  .150  .430  3.90  .50  .00024  4
115   118   16440.  453.0   6.0  .1736  .250  .450  .300  .460  3.90  .50  .00024  4
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  116     119     2600.    34.0    15.0   .1472   .150   .400   .150   .500   3.90   .50   .00024   4
  117     120     7960.   220.0    15.0   .1331   .150   .400   .150   .470   3.90   .50   .00024   4
  101     104     6880.   205.0    15.0   .1564   .150   .400   .150   .450   3.50   .20   .00100   4
  102     105     9120.   343.0    10.0   .1175   .150   .400   .150   .500   3.90   .50   .00024   4
  103     106    12760.   273.0     8.0   .1121   .250   .450   .300   .500   3.90   .50   .00024   4
   99     102    10440.   314.0    10.0   .1275   .150   .400   .150   .480   3.90   .50   .00024   4
  100     103     8170.   150.0     8.0   .1343   .150   .400   .150   .450   3.90   .50   .00100   4
  109     112     7280.   208.0     7.0   .4086   .250   .450   .300   .470   3.90   .50   .00024   4
  110     113    10120.   209.0     7.0   .2899   .250   .450   .300   .500   3.90   .50   .00024   4
  111     114     9000.   230.0     5.0   .2973   .300   .500   .300   .470   3.90   .50   .00024   5
  112     115     6480.   102.0     6.0   .4123   .250   .450   .300   .460   3.90   .50   .00024   4
  107     110     4140.   399.0     8.0   .3550   .250   .450   .300   .470   3.90   .50   .00024   4
  105     108    12480.   202.0     5.0   .3863   .300   .500   .300   .470   3.90   .50   .00024   4
  106     109     5520.   216.0     7.0   .1680   .250   .450   .300   .500   3.90   .50   .00024   4
  108     111    11200.   199.0     5.0   .4732   .300   .500   .300   .460   3.90   .50   .00024   4
  104     107     5440.   106.0     8.0   .2557   .250   .450   .300   .480   3.90   .50   .00024   4
   97     100    19960.   458.0     7.0   .5159   .250   .450   .300   .480   3.50   .20   .00100   4
   95      98    14000.   309.0    18.0   .1544   .250   .450   .200   .470   3.50   .20   .00100   4
   96      99     2880.    55.0    10.0   .3003   .250   .450   .300   .480   3.50   .20   .00100   4
   98     101     1380.    82.0     8.0   .1629   .250   .450   .200   .470   3.50   .20   .00100   4
   94      97    11440.   472.0     8.0   .3012   .250   .450   .300   .470   3.90   .50   .00024   4
   92      94     5120.   475.0     7.0   .1426   .250   .450   .300   .500   3.90   .50   .00024   4
   56      72     8960.   197.0     7.0   .1792   .150   .400   .150   .420   3.50   .20   .00100   4
   57      73    16000.   636.0     8.0   .1300   .150   .400   .150   .440   3.90   .50   .00024   4
   55      71     9640.   261.0     7.0   .1967   .250   .450   .300   .470   3.50   .20   .00100   4
   43      59     8040.   296.0     9.0   .1912   .150   .400   .150   .400   3.90   .50   .00024   4
   47      63     7960.   234.0     6.0   .4083   .250   .450   .300   .470   3.90   .50   .00024   4
   48      64     7480.   258.0     6.0   .3750   .250   .450   .300   .500   3.90   .50   .00024   4
   45      61    15000.   552.0     8.0   .2077   .250   .450   .200   .470   3.50   .20   .00100   4
   42      46     6440.   197.0     7.0   .3799   .250   .450   .200   .400   3.50   .20   .00100   4
   44      60     8160.   225.0     7.0   .2515   .250   .450   .200   .470   3.50   .20   .00100   4
   46      62     2800.    39.0     5.0   .3963   .250   .450   .300   .470   3.50   .20   .00100   4
   50      66     6120.   108.0     6.0   .4444   .250   .450   .300   .500   3.90   .50   .00024   4
   51      67    13240.   636.0     7.0   .3651   .250   .450   .300   .470   3.50   .20   .00100   4
   53      69     7480.   197.0    12.0   .2552   .150   .400   .150   .470   3.50   .20   .00100   4
   54      70    13920.   246.0    12.0   .2827   .150   .400   .150   .420   3.50   .20   .00100   4
   49      65     7920.   212.0     5.0   .3375   .250   .450   .300   .480   3.90   .50   .00024   4
   52      68     4240.    80.0     7.0   .3917   .250   .450   .300   .500   3.50   .20   .00100   4
   41      42    15160.   593.0     8.0   .4922   .250   .450   .200   .450   3.90   .50   .00024   4
   39      40    13160.   356.0    20.0   .4570   .250   .450   .100   .450   3.90   .50   .00024   3
   40      41     6200.   205.0     9.0   .5172   .250   .450   .200   .500   3.50   .20   .00100   4
   18      18    15200.   565.0     7.0   .3792   .250   .450   .200   .420   3.50   .20   .00100   3
   19      20    10680.   606.0     9.0   .1670   .150   .400   .150   .470   3.90   .50   .00024   4
   20      21    13920.   379.0     6.0   .3275   .250   .450   .300   .400   3.90   .50   .00024   3
   14      14     6160.   132.0    25.0   .4006   .250   .450   .100   .500   3.50   .20   .00100   3
   15      15     3000.    36.0    25.0   .3169   .250   .450   .100   .450   3.50   .20   .00100   3
   16      16     3840.   117.0    25.0   .2094   .250   .450   .100   .400   3.50   .20   .00100   3
   17      17     5640.   156.0    20.0   .3423   .250   .450   .100   .400   3.50   .20   .00100   3
    8       8    14200.  1227.0    67.0   .2919   .250   .450   .050   .450   3.50   .20   .00100   3
   37      38     5060.   368.0     7.0   .2400   .250   .450   .200   .420   3.90   .50   .00024   4
   38      39    10280.   290.0     7.0   .3153   .250   .450   .300   .420   3.50   .20   .00100   4
   36      37    16320.   466.0     5.0   .1439   .250   .450   .300   .480   3.90   .50   .00024   4
   33      34    13680.   445.0     8.0   .1186   .150   .400   .200   .410   3.90   .50   .00024   4
   34      35     6280.   148.0     7.0   .2940   .250   .450   .300   .420   3.50   .20   .00100   4
   35      36    10680.   251.0     6.0   .1368   .250   .450   .300   .400   3.50   .20   .00100   4
   31      32     6520.   144.0     6.0   .2938   .250   .450   .300   .420   3.90   .50   .00024   4
   32      33    10360.   257.0    12.0   .1275   .150   .400   .150   .420   3.50   .20   .00100   4
   30      31     5440.   107.0     7.0   .2363   .150   .400   .150   .450   4.50   .60   .00010   3
   22      23     9840.   195.0     8.0   .1920   .250   .450   .200   .460   3.50   .20   .00100   3
   29      30    11560.   546.0    12.0   .0980   .150   .400   .150   .450   3.50   .20   .00100   4
   26      27     5080.   107.0     5.0   .2510   .250   .450   .300   .450   3.90   .50   .00024   3
   27      28     5040.   300.0     9.0   .1461   .150   .400   .150   .430   3.90   .50   .00024   3
   28      29     6120.   152.0     7.0   .2020   .150   .400   .150   .450   3.50   .20   .00100   4
   24      25     5920.   363.0     9.0   .3292   .250   .450   .300   .450   3.50   .20   .00100   3
   25      26     3720.    94.0     8.0   .1772   .150   .400   .150   .450   3.50   .20   .00100   3
   23      24     1740.   104.0     7.0   .1530   .250   .450   .300   .450   3.50   .20   .00100   3
   21      22    12000.   447.0    20.0   .2822   .150   .400   .200   .400   3.50   .20   .00100   3
    9       9    20640.   411.0     8.0   .2894   .250   .450   .300   .470   3.90   .50   .00024   2
   10      10     7520.   202.0     6.0   .3773   .250   .450   .300   .480   3.90   .50   .00024   2
    7       7     9880.   373.0     7.0   .2911   .300   .500   .300   .500   3.90   .50   .00024   2
    3       3    22000.   929.0     8.0   .3243   .250   .450   .200   .450   3.50   .20   .00100   2
    4       4    25560.   960.0     8.0   .2675   .250   .450   .200   .500   3.50   .20   .00100   2
    2       2    14480.   519.0     7.0   .4504   .300   .500   .300   .420   3.50   .20   .00100   2
    6       6    16100.   296.0    10.0   .4790   .300   .500   .300   .450   3.50   .20   .00100   2
    5       5    18300.   336.0     6.0   .2506   .300   .500   .300   .420   5.00   .60   .00006   2
    1       1    30900.   567.0     7.0   .5000   .300   .500   .300   .420   3.50   .20   .00100   2
   11      11     6000.   113.0    25.0   .3243   .250   .450   .200   .500   3.90   .50   .00024   2
   12      12     8360.   159.0     6.0   .3715   .300   .500   .300   .500   3.90   .50   .00024   2
   13      13    10480.   229.0     7.0   .3542   .300   .500   .300   .500   3.90   .50   .00024   2
  256     247    39100.   808.0     7.0   .1652   .250   .450   .200   .450   3.50   .20   .00100   2
  257     248    31200.   645.0     8.0   .2217   .250   .450   .200   .450   3.50   .20   .00100   2
  258     249    18300.   377.0     7.0   .1984   .250   .450   .300   .420   3.50   .20   .00100   2
  259     250     5300.   109.0     5.0   .1627   .250   .450   .300   .450   4.80   .50   .00010   2
  253     244    36900.   848.0    50.0   .2354   .300   .500   .300   .350   3.90   .50   .00024   2
  254     245     7300.   100.0     7.0   .2934   .250   .450   .200   .450   3.50   .20   .00100   2
  255     246    21800.   450.0     8.0   .2396   .250   .450   .300   .450   3.50   .20   .00100   2
   76      54    10300.   213.0     8.0   .3735   .300   .500   .300   .500   5.00   .60   .00006   2
   77      55    25900.   297.0     7.0   .4316   .300   .500   .300   .500   5.00   .60   .00006   2
   75      53     2400.    26.0     6.0   .4875   .300   .500   .300   .460   3.50   .20   .00024   2
   73      52    38400.   441.0    18.0   .3662   .300   .500   .300   .400   3.50   .20   .00100   2
   82      51    19700.   362.0    25.0   .3938   .250   .450   .300   .400   3.50   .20   .00100   2
   71      50    11300.   207.0    25.0   .4627   .300   .500   .400   .450   3.50   .20   .00100   2
   80      58    12000.   220.0     6.0   .3854   .300   .500   .300   .480   5.00   .60   .00006   2
   81      57    42200.   776.0     8.0   .5226   .250   .450   .200   .470   4.50   .60   .00010   2
   78      56    22000.   404.0    18.0   .4013   .250   .450   .300   .500   4.80   .50   .00010   2
   79      56    21400.   442.0    15.0   .3303   .300   .500   .300   .450   4.50   .60   .00010   2
   72      49    16000.   220.0    35.0   .5698   .300   .500   .300   .500   4.50   .50   .00010   2
   69      48     9400.   391.0    35.0   .2301   .250   .450   .300   .400   3.90   .50   .00024   2
 1635    1635    12865.   317.0    12.0   .3700   .300   .500   .300   .450   3.50   .20   .00100   2
 1645    1645     5640.   126.0     5.0   .2900   .250   .450   .150   .450   3.50   .20   .00100   2
 1640    1640     8667.   200.0    10.0   .2900   .300   .300   .320   .450   3.50   .20   .00100   2
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 1630   1630    8660.  159.0    6.0  .1300   .400   .450   .150   .450   3.50   .20   .00100   2
 1625   1625   10700.  197.0    9.0  .2100   .200   .400   .150   .450   3.50   .20   .00100   1
 1610   1610    6780.  109.0    9.0  .0200   .200   .400   .150   .450   4.80   .50   .00010   1
 1665   1665   14692.  390.0   35.0  .2870   .200   .400   .150   .450   3.50   .20   .00100   2
 1605   1605    7689.   81.0    6.0  .1100   .200   .400   .150   .450   4.80   .50   .00010   1
 1660   1660   23764.  552.0    7.0  .2000   .200   .450   .150   .460   3.90   .50   .00024   2
 1650   1650   13676.  382.0    7.0  .2300   .200   .200   .150   .450   3.50   .20   .00100   2
 1655   1655   22832.  558.0    6.0  .1600   .200   .450   .150   .460   3.50   .20   .00100   2
 1620   1620   17977.  324.0    7.0  .0500   .200   .400   .150   .470   4.80   .50   .00010   2
 1615   1615   11967.  228.0    7.0  .1200   .200   .400   .150   .470   4.50   .60   .00010   2
 1710   1710    9974.  245.0    5.0  .0100   .200   .400   .150   .350   3.90   .50   .00024   1
 1600   1600    3273.   25.0    7.0  .0500   .200   .450   .150   .600   5.00   .70   .00002   1
 1705   1705    2245.   67.0    5.0  .0100   .200   .400   .150   .350   3.90   .50   .00024   2
 1450   1450    4800.  198.0    5.0  .0200   .150   .450   .150   .600   3.90   .50   .00024   1
 1445   1445    6714.  164.0    5.0  .0800   .200   .400   .150   .350   5.00   .60   .00006   1
 1440   1440   12663.   66.0    7.0  .0100   .150   .450   .150   .600   3.90   .50   .00024   1
 1480   1938   34034.  732.0   35.0  .0200   .200   .400   .150   .300   3.90   .50   .00024   1
 1435   1435    6984.  232.0    5.0  .0800   .200   .400   .150   .460   5.00   .60   .00006   1
 1430   1430    6338.   82.0    5.0  .0700   .200   .400   .150   .460   5.00   .60   .00006   1
 1425   1425    4940.   68.0    6.0  .0400   .200   .400   .150   .600   5.00   .70   .00002   1
 1420   1420   26178.   59.0    9.0  .0220   .200   .450   .150   .600   3.90   .50   .00024   1
 1570   1570    3089.  171.0    6.0  .3540   .200   .450   .150   .450   3.50   .20   .00100   2
 1555   1556    7055.   83.0    7.0  .1300   .200   .450   .150   .450   4.80   .50   .00010   1
 1565   1565    4112.   95.0    9.0  .3200   .200   .450   .150   .470   3.50   .20   .00100   2
 1560   1560    5353.  123.0    8.0  .4400   .200   .450   .150   .450   3.50   .20   .00100   2
 1550   1550   20321.  424.0    7.0  .0700   .200   .400   .150   .450   3.50   .20   .00100   1
 1415   1415    5148.  307.0    5.0  .0260   .200   .400   .150   .500   3.90   .50   .00024   1
 1410   1410    5300.  195.0    5.0  .0100   .150   .450   .150   .500   3.90   .50   .00024   1
 1455   1455   19899.  542.0   11.0  .0037   .200   .400   .150   .350   4.80   .50   .00010   1
 1490   1490    8100.  698.0   10.0  .0620   .200   .400   .150   .350   4.50   .50   .00010   1
 1465   1465   19569.   93.0   10.0  .0348   .150   .500   .150   .350   4.50   .60   .00010   1
 1460   1460   12745.  286.0    9.0  .0603   .200   .400   .150   .350   5.00   .60   .00006   1
 1575   1575   10554.  222.0   10.0  .4060   .200   .450   .150   .450   3.50   .20   .00100   2
 1545   1545   15603.  253.0    7.0  .0890   .200   .400   .150   .450   4.80   .50   .00010   1
 1530   1530    8269.  345.0    6.0  .1080   .200   .400   .150   .350   4.80   .50   .00010   1
 1525   1525   14343.   53.0   10.0  .0200   .150   .400   .150   .350   3.90   .50   .00024   1
 1505   1505   49306.  262.0   10.0  .0100   .150   .450   .150   .350   3.50   .20   .00100   1
 1520   1520   21460.   99.0   10.0  .0100   .200   .450   .150   .350   3.50   .20   .00100   1
 1715   1715    3131.  115.0    7.0  .1200   .150   .400   .150   .350   3.90   .50   .00024   1
 1515   1515    3666.    8.0   60.0  .0200   .150   .400   .150   .350   3.50   .20   .00100   1
 1540   1541   19881.  345.0   15.0  .0300   .200   .400   .150   .350   4.50   .60   .00010   1
 1510   1510   16588.   76.0    3.0  .0100   .150   .400   .150   .350   3.90   .50   .00024   1
 1500   1500   21483.  465.0   10.0  .0400   .200   .400   .150   .250   3.90   .50   .00024   1
  299    299   20092.   72.0   40.0  .1300   .150   .500   .150   .350   4.80   .50   .00010   1
  301    301   38137.  177.0   31.0  .1600   .150   .500   .150   .350   4.80   .50   .00010   1
  297    297   84806.  338.0   40.0  .1200   .150   .500   .150   .350   4.80   .50   .00010   1
  305   1917    1795.  103.0   10.0  .0240   .150   .350   .150   .250   3.90   .50   .00024   1
  304    304    2970.  150.0   10.0  .0240   .150   .350   .150   .250   3.90   .50   .00024   1
  262    262    3964.   39.0    5.0  .0200   .200   .400   .150   .250   3.90   .50   .00024   1
  264    264    1734.   26.0    5.0  .0200   .200   .400   .150   .250   3.90   .50   .00024   1
  243    243   46293.   82.0    7.0  .0200   .200   .350   .150   .350   3.90   .50   .00024   1
  384    384   27915.   77.0   45.0  .0900   .150   .500   .150   .350   4.80   .50   .00010   1
  290    290    4748.   29.0    5.0  .0250   .300   .400   .150   .400   3.90   .50   .00024   1
  353    353   12867.   41.0   50.0  .0700   .150   .500   .150   .350   5.00   .60   .00006   1
  350    350   13939.   51.0   70.0  .0550   .150   .400   .150   .350   4.80   .50   .00010   1
  351    351   17043.   59.0   70.0  .0600   .150   .450   .150   .350   5.00   .60   .00006   1
  376    376    1390.    3.0   10.0  .0100   .150   .450   .150   .350   4.80   .50   .00010   1
  368    368    7225.   99.0   50.0  .0070   .150   .450   .150   .350   3.90   .50   .00024   1
  361    361    6400.   30.0   60.0  .0060   .150   .450   .150   .350   3.90   .50   .00024   1
  369    369    7449.   17.0   60.0  .0400   .150   .450   .150   .350   4.80   .50   .00010   1
  354   1818    6316.    6.0   95.0  .0400   .150   .350   .150   .250   4.80   .50   .00010   1
  355    355    9583.    7.0   65.0  .0400   .150   .350   .150   .250   4.80   .50   .00010   1
  363    363    9583.    7.0   33.0  .0550   .150   .350   .150   .250   4.80   .50   .00010   1
  366    366   26706.   81.0   45.0  .0550   .150   .500   .150   .350   4.80   .50   .00010   1
  367    367    9047.   23.0   65.0  .0450   .150   .500   .150   .350   4.80   .50   .00010   1
  373    373    4140.   38.0    6.0  .0200   .150   .400   .150   .350   4.80   .50   .00010   1
  241    241   45665.  343.0   45.0  .0200   .150   .400   .150   .450   3.90   .50   .00024   1
  346    346   21083.   71.0   40.0  .0600   .150   .450   .150   .350   3.90   .50   .00024   1
  345    345   20528.   78.0   50.0  .0600   .150   .450   .150   .350   4.80   .50   .00010   1
  349    349    1951.   13.0   15.0  .0200   .150   .450   .150   .350   4.80   .50   .00010   1
  347    347   11476.   55.0   65.0  .0500   .150   .400   .150   .350   4.80   .50   .00010   1
  371    371   12050.   83.0   50.0  .0500   .150   .450   .150   .250   4.80   .50   .00010   1
  338    338   14259.   73.0    8.0  .0250   .150   .350   .150   .250   3.90   .50   .00024   1
  333    333    6300.    5.0   60.0  .0400   .200   .450   .150   .550   3.50   .20   .00100   1
  334    334    6300.    5.0   60.0  .0400   .150   .350   .150   .250   3.50   .20   .00100   1
  240    240    2500.   46.0   25.0  .1100   .150   .450   .150   .600   3.90   .50   .00024   1
  318    318   20255.  157.0   20.0  .0300   .150   .550   .150   .500   3.90   .50   .00024   1
  335    335    8868.   36.0   45.0  .0500   .150   .450   .150   .450   3.90   .50   .00024   1
  336   1329   10002.   31.0   45.0  .0300   .150   .450   .150   .450   3.90   .50   .00024   1
  337    337   14520.   50.0   50.0  .0350   .150   .450   .150   .450   3.90   .50   .00024   1
  312    312    7094.   12.0   70.0  .0400   .150   .450   .150   .250   3.90   .50   .00024   1
  315    315    8712.   28.0   45.0  .0400   .150   .450   .150   .450   3.90   .50   .00024   1
  316    316   12777.   43.0   45.0  .0300   .150   .450   .150   .450   3.90   .50   .00024   1
  358    358    4084.   12.0   45.0  .0300   .150   .450   .150   .450   3.90   .50   .00024   1
  320    320   22099.  161.0   50.0  .0250   .250   .450   .250   .600   3.90   .50   .00024   1
 1323   1323    2406.    9.0   50.0  .0080   .150   .450   .150   .450   3.90   .50   .00024   1
  321    321   47509.   25.0   60.0  .0450   .150   .450   .150   .350   3.90   .50   .00024   1
  319    319   43000.  164.0   70.0  .0250   .150   .400   .150   .250   3.90   .50   .00024   1
  370    370   14400.   41.0   70.0  .0250   .150   .400   .150   .250   3.90   .50   .00024   1
  233    233   42776.  281.0   25.0  .0500   .150   .500   .150   .500   3.90   .50   .00024   1
  235    235   20400.  187.0   20.0  .1100   .150   .500   .150   .500   3.90   .50   .00024   1
  231    231   58487.  390.0   55.0  .0200   .150   .400   .150   .250   3.90   .50   .00024   1
0TOTAL NUMBER OF SUBCATCHMENTS, 314
0TOTAL TRIBUTARY AREA (ACRES),  86852.00
1
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 *** CONTINUITY CHECK FOR SUBCATCHMEMT ROUTING IN UDSWM386 MODEL ***

 WATERSHED AREA (ACRES)                          86852.000

 TOTAL RAINFALL (INCHES)                             4.898

 TOTAL INFILTRATION (INCHES)                         3.209

 TOTAL WATERSHED OUTFLOW (INCHES)                    1.662

 TOTAL SURFACE STORAGE AT END OF STORM (INCHES)       .028

 ERROR IN CONTINUITY, PERCENTAGE OF RAINFALL         -.025
1


 sbc_1td.swi
 500-year model


                                                         WIDTH              INVERT   SIDE SLOPES              OVERBANK/SURCHARGE
GUTTER    GUTTER       NDP           NP                 OR DIAM    LENGTH    SLOPE  HORIZ TO VERT  MANNING       DEPTH       JK
NUMBER    CONNECTION                                      (FT)      (FT)   (FT/FT)      L      R      N           (FT)

 226        224          0            1      CHANNEL       20.0     3740.    .1337     4.0    4.0     .040       15.00        0
 225        224          0            1      CHANNEL        5.0     1862.    .0600    10.0   10.0     .045       15.00        0
 224        222          0            1      CHANNEL        4.0     4220.    .1300     3.0    3.0     .055       15.00        0
 223        222          0            1      CHANNEL       10.0     5960.    .1406    10.0   10.0     .040       15.00        0
 222        218          0            1      CHANNEL        5.0     2280.    .1000     4.0    4.0     .055       15.00        0
 221        218          0            1      CHANNEL        5.0     6520.    .1992     5.0    5.0     .055       15.00        0
 220        219          0            1      CHANNEL        8.0     7580.    .2107     7.0    7.0     .050       15.00        0
 218        219          0            1      CHANNEL        5.0     1660.    .0900     4.0    4.0     .055       15.00        0
 219        215          0            1      CHANNEL       10.0     2531.    .1000     7.0    7.0     .055       15.00        0
 216        215          0            1      CHANNEL       20.0     8160.    .1875    10.0   10.0     .055       15.00        0
 214        212          0            1      CHANNEL       10.0     6880.    .1727    10.0   10.0     .055       15.00        0
 213        212          0            1      CHANNEL       10.0     5900.    .1268    10.0   10.0     .055       15.00        0
 212        211          0            1      CHANNEL       15.0     6100.    .1511     7.0    7.0     .060       15.00        0
 215        211          0            4      CHANNEL       10.0     5210.    .0600     4.0    4.0     .050        2.00        0
                                               OVERFLOW    50.0     5210.    .0600     6.0    6.0     .055       25.00
 217        215          0            1      CHANNEL       20.0     4860.    .3560     5.0    5.0     .040       15.00        0
 211        207          0            4      CHANNEL        8.0     2390.    .0500     3.0    3.0     .050        2.00        0
                                               OVERFLOW    25.0     2390.    .0500     5.0    5.0     .055       25.00
 186        184          0            1      CHANNEL       10.0     4260.    .1002     9.0    9.0     .060       15.00        0
 185        184          0            1      CHANNEL        5.0     3720.    .0594     6.0    6.0     .060       15.00        0
 183        182          0            1      CHANNEL       10.0     8000.    .1050     6.0    6.0     .060       15.00        0
 181        180          0            1      CHANNEL        5.0     6640.    .1583     7.0    7.0     .060       15.00        0
 184        182          0            1      CHANNEL       15.0     3540.    .1158     8.0    8.0     .055       15.00        0
 182        180          0            4      CHANNEL       15.0     4600.    .0720     4.0    4.0     .050        2.50        0
                                               OVERFLOW   100.0     4370.    .0758    15.0   15.0     .055       20.00
 180        176          0            4      CHANNEL       10.0     4520.    .0507     4.0    4.0     .045        3.00        0
                                               OVERFLOW    35.0     4294.    .0534     3.0    3.0     .060       20.00
 204        201          0            1      CHANNEL       15.0     6720.    .0911     6.0    6.0     .050       15.00        0
 203        201          0            1      CHANNEL        5.0     3500.    .2286     5.0    5.0     .055       15.00        0
 201        198          0            4      CHANNEL       15.0     7700.    .0835     4.0    4.0     .050        3.00        0
                                               OVERFLOW    50.0     7315.    .0879     7.0    7.0     .060       20.00
 200        198          0            1      CHANNEL        5.0     7220.    .1722     7.0    7.0     .055       15.00        0
 202        198          0            1      CHANNEL        5.0     3820.    .1971     5.0    5.0     .060       15.00        0
 198        194          0            4      CHANNEL       25.0     7220.    .0370     4.0    4.0     .050        3.00        0
                                               OVERFLOW   200.0     6860.    .0389     7.0    7.0     .060       20.00
 199        194          0            1      CHANNEL        5.0     9020.    .1233     6.0    6.0     .060       15.00        0
 196        194          0            1      CHANNEL        5.0     7320.    .1243     5.0    5.0     .060       15.00        0
 195        194          0            1      CHANNEL       10.0     4760.    .1513     5.0    5.0     .060       15.00        0
 194        192          0            4      CHANNEL       20.0     7560.    .0921     4.0    4.0     .055        3.00        0
                                               OVERFLOW    80.0     7182.    .0969    10.0   10.0     .060       20.00
 208        207          0            1      CHANNEL       10.0     4260.    .2230     8.0    8.0     .060       15.00        0
 207        205          0            4      CHANNEL       25.0     5000.    .0150     4.0    4.0     .040        2.00        0
                                               OVERFLOW   200.0     5000.    .0150    10.0   10.0     .050       25.00
 206        205          0            1      CHANNEL       25.0     3860.    .2591     5.0    5.0     .040       15.00        0
 205        192          0            4      CHANNEL       20.0     4900.    .0349     4.0    4.0     .045        3.00        0
                                               OVERFLOW   100.0     4900.    .0349     8.0    8.0     .055       25.00
 192        187          0            4      CHANNEL       32.0     1540.    .0120     4.0    4.0     .040        3.00        0
                                               OVERFLOW   250.0     1540.    .0120    20.0   20.0     .050       25.00
 193        187          0            1      CHANNEL       25.0     4480.    .1897     4.0    4.0     .040       15.00        0
 187        172          0            4      CHANNEL       32.0     7388.    .0100     4.0    4.0     .040        3.00        0
                                               OVERFLOW   250.0     7388.    .0100    20.0   20.0     .050       25.00
 178        177          0            1      CHANNEL        5.0     6500.    .1186     8.0    8.0     .060       15.00        0
 177        175          0            1      CHANNEL        8.0     6020.    .0862     7.0    7.0     .055       15.00        0
 179        176          0            1      CHANNEL       20.0     3860.    .2383     5.0    5.0     .045       15.00        0
 176        175          0            4      CHANNEL       20.0     7520.    .0386     4.0    4.0     .045        3.00        0
                                               OVERFLOW   100.0     7144.    .0406     5.0    5.0     .060       20.00
 174        173          0            1      CHANNEL        5.0     4060.    .1421     6.0    6.0     .055       15.00        0
 175        173          0            4      CHANNEL       30.0     1900.    .0353     4.0    4.0     .035        3.00        0
                                               OVERFLOW   150.0     1805.    .0372    15.0   15.0     .045       20.00
 173        172          0            4      CHANNEL       25.0     5760.    .0587     4.0    4.0     .035        3.00        0
                                               OVERFLOW   200.0     5472.    .0618    15.0   15.0     .045       20.00
 172        157          0            4      CHANNEL       25.0     1860.    .0100     3.0    3.0     .045        3.00        0
                                               OVERFLOW    75.0     1860.    .0100     5.0    5.0     .050       25.00
 168        165          0            1      CHANNEL        5.0     3620.    .1740     7.0    7.0     .060       15.00        0
 169        165          0            1      CHANNEL        5.0     3140.    .1720     7.0    7.0     .060       15.00        0
 165        166          0            1      CHANNEL       10.0     6920.    .1026     5.0    5.0     .060       15.00        0
 167        166          0            1      CHANNEL        5.0     5360.    .1940     6.0    6.0     .060       15.00        0
 166        163          0            1      CHANNEL       15.0     1040.    .0673    10.0   10.0     .055       15.00        0
 164        163          0            1      CHANNEL       10.0     4000.    .1263     8.0    8.0     .050       15.00        0
 163        157          0            1      CHANNEL       25.0     2640.    .0568     5.0    5.0     .050       15.00        0
 170        157          0            1      CHANNEL        5.0     4840.    .1543     5.0    5.0     .055       15.00        0
 171        157          0            1      CHANNEL        5.0     4420.    .1837     7.0    7.0     .055       15.00        0
 157        156          0            4      CHANNEL       25.0     1660.    .0220     3.0    3.0     .045        3.00        0
                                               OVERFLOW    75.0     1660.    .0220     4.0    4.0     .050       25.00
 161        160          0            1      CHANNEL        5.0     4380.    .1667     5.0    5.0     .060       15.00        0
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  162       160         0         1     CHANNEL        5.0     5800.    .2121     5.0    5.0       .060      15.00       0
  160       158         0         1     CHANNEL       10.0     3360.    .0908    10.0   10.0       .055      15.00       0
  159       158         0         1     CHANNEL       10.0     6380.    .1293     6.0    6.0       .060      15.00       0
  158       156         0         1     CHANNEL       20.0     5700.    .0619     5.0    5.0       .050      15.00       0
  156       154         0         4     CHANNEL       35.0     4980.    .0190     3.0    3.0       .050       3.00       0
                                          OVERFLOW   100.0     4980.    .0190     3.0    3.0       .055      25.00
  155       154         0         1     CHANNEL       12.0     2180.    .2683     4.0    4.0       .050      15.00       0
  153       152         0         1     CHANNEL       12.0     4380.    .1530     4.0    4.0       .060      15.00       0
  154       152         0         4     CHANNEL       35.0     2880.    .0200     3.0    3.0       .050       3.00       0
                                          OVERFLOW   100.0     2880.    .0200     3.0    3.0       .055      25.00
  152       149         0         4     CHANNEL       30.0     6980.    .0150     4.0    4.0       .045       3.00       0
                                          OVERFLOW   200.0     6980.    .0150     5.0    5.0       .050      25.00
  150       149         0         1     CHANNEL        5.0     2780.    .1691     4.0    4.0       .055      15.00       0
  151       149         0         1     CHANNEL        6.0     4120.    .1286     4.0    4.0       .055      15.00       0
  149       139         0         4     CHANNEL       35.0     3220.    .0140     4.0    4.0       .045       3.00       0
                                          OVERFLOW   300.0     3220.    .0140     5.0    5.0       .050      25.00
  147       146         0         1     CHANNEL        8.0     5600.    .1625     6.0    6.0       .060      15.00       0
  148       146         0         1     CHANNEL        8.0     2720.    .1048     8.0    8.0       .060      15.00       0
  146       142         0         1     CHANNEL       10.0     5540.    .0727     8.0    8.0       .055      15.00       0
  144       143         0         1     CHANNEL        5.0     2200.    .1568     8.0    8.0       .060      15.00       0
  145       143         0         1     CHANNEL        3.0     2160.    .1574     5.0    5.0       .060      15.00       0
  143       142         0         1     CHANNEL        8.0     4840.    .1184     5.0    5.0       .060      15.00       0
  142       140         0         1     CHANNEL       10.0     2080.    .0514     8.0    5.0       .055      15.00       0
  141       140         0         1     CHANNEL        5.0     3800.    .1237     5.0    5.0       .060      15.00       0
  140       139         0         1     CHANNEL       15.0     4320.    .0505     8.0    7.0       .055      15.00       0
  138       137         0         1     CHANNEL       10.0     5440.    .0432    10.0   10.0       .055      15.00       0
  139       137         0         4     CHANNEL       30.0     1880.    .0160     4.0    4.0       .045       3.00       0
                                          OVERFLOW   200.0     1880.    .0160     5.0    5.0       .050      25.00
  137       129         0         4     CHANNEL       30.0     2009.    .0130     4.0    4.0       .040       3.00       0
                                          OVERFLOW   200.0     2009.    .0130     5.0    5.0       .050      25.00
  135       134         0         1     CHANNEL        5.0     4080.    .1716     5.0    5.0       .060      15.00       0
  136       134         0         1     CHANNEL        5.0     3000.    .1433     6.0    6.0       .060      15.00       0
  134       133         0         1     CHANNEL       10.0    10020.    .0868     5.0    5.0       .055      15.00       0
  133       130         0         1     CHANNEL       15.0     7720.    .0505     5.0    5.0       .055      15.00       0
  131       130         0         4     CHANNEL       15.0     4860.    .1008     3.0    3.0       .055       3.00       0
                                          OVERFLOW   100.0     4617.    .1061    10.0   10.0       .060      20.00
  132       130         0         1     CHANNEL        8.0     4560.    .0789     6.0    6.0       .060      15.00       0
  130       129         0         1     CHANNEL       25.0     3360.    .0363     7.0    7.0       .055      15.00       0
  129        96         0         4     CHANNEL       30.0     3520.    .0160     3.5    3.5       .055       4.00       0
                                          OVERFLOW   100.0     3520.    .0160     4.0    4.0       .060      25.00
  125       124         0         1     CHANNEL        5.0     3800.    .1842     8.0    8.0       .055      15.00       0
  126       124         0         1     CHANNEL        5.0     3420.    .1871     6.0    6.0       .060      15.00       0
  124       122         0         1     CHANNEL       10.0     7520.    .0535     8.0    8.0       .055      15.00       0
  127       123         0         1     CHANNEL       10.0     8000.    .1056    10.0   10.0       .055      15.00       0
  128       123         0         1     CHANNEL       10.0     8660.    .1236    15.0   15.0       .055      15.00       0
  123       122         0         1     CHANNEL       15.0     4160.    .0317    15.0   15.0       .055      15.00       0
  122        96         0         1     CHANNEL       20.0     9440.    .0607     5.0    5.0       .060      15.00       0
   96        95         0         4     CHANNEL       25.0     6320.    .0170     2.0    2.0       .055       4.00       0
                                          OVERFLOW    50.0     6320.    .0170     2.0    2.0       .060      25.00
  116        95         0         4     CHANNEL        5.0     9520.    .0772     3.0    3.0       .050       2.50       0
                                          OVERFLOW    70.0     9044.    .0813     8.0    8.0       .055      20.00
   95        94         0         4     CHANNEL       30.0     4000.    .0120     3.0    3.0       .040       3.00       0
                                          OVERFLOW   150.0     4000.    .0120     5.0    5.0       .050      25.00
   85        84         0         1     CHANNEL        5.0     2220.    .0396     4.0    4.0       .060      15.00       0
   86        84         0         1     CHANNEL        8.0     5880.    .1259     4.0    4.0       .060      15.00       0
   84        82         0         1     CHANNEL       10.0     2720.    .0890    10.0   10.0       .060      15.00       0
   83        82         0         1     CHANNEL       10.0     2380.    .0450    12.0   12.0       .060      15.00       0
   82        80         0         1     CHANNEL       20.0     2220.    .0396    12.0   12.0       .060      15.00       0
   87        81         0         1     CHANNEL       10.0     8040.    .0796     5.0    5.0       .065      15.00       0
   81        80         0         1     CHANNEL       15.0     6220.    .0691     7.0    7.0       .065      15.00       0
   80        79         0         1     CHANNEL       20.0     6380.    .1993    10.0   10.0       .065      15.00       0
  121        79         0         4     CHANNEL        8.0     4700.    .0660     4.0    4.0       .055       2.50       0
                                          OVERFLOW    60.0     4465.    .0695    12.0   12.0       .057      20.00
   79        75         0         1     CHANNEL       25.0     8020.    .0212    10.0   10.0       .060      15.00       0
   78        75         0         1     CHANNEL        8.0     3780.    .0688    20.0   20.0       .060      15.00       0
   75        77         0         1     CHANNEL       25.0     1600.    .0188     3.0    5.0       .060      15.00       0
   77        74         0         1     CHANNEL       40.0     2020.    .0198     3.0    3.0       .060      15.00       0
   76        74         0         4     CHANNEL       10.0     6420.    .0779     4.0    4.0       .050       2.00       0
                                          OVERFLOW    60.0     6420.    .0779     8.0    8.0       .055      20.00
   74        59         0         4     CHANNEL       30.0     4700.    .0130     4.0    4.0       .050       4.00       0
                                          OVERFLOW    75.0     4700.    .0130     4.0    3.0       .055      25.00
   89        88         0         1     CHANNEL        8.0     4240.    .0217    10.0   10.0       .055      15.00       0
   93        88         0         1     CHANNEL        5.0     2440.    .0984    10.0   10.0       .055      15.00       0
   88        77         0         4     CHANNEL       11.0     7200.    .1380    10.0   10.0       .060       3.00       0
                                          OVERFLOW   100.0     7200.    .1380    50.0   50.0       .045      20.00
  120       119         0         4     CHANNEL        5.0     3980.    .0879     3.0    3.0       .050       3.00       0
                                          OVERFLOW   200.0     3781.    .0925    10.0   10.0       .055      20.00
  118       119         0         4     CHANNEL        5.0     8220.    .1095     3.0    3.0       .050       3.00       0
                                          OVERFLOW   150.0     7809.    .1153    10.0   10.0       .055      20.00
  119       104         0         4     CHANNEL        5.0     1300.    .0400     3.0    3.0       .050       3.00       0
                                          OVERFLOW   150.0     1235.    .0421    10.0   10.0       .055      20.00
  117       104         0         4     CHANNEL        5.0     6000.    .0587     3.0    3.0       .050       3.00       0
                                          OVERFLOW   100.0     5700.    .0618    10.0   10.0       .055      20.00
  104       103         0         4     CHANNEL       10.0     3440.    .0343     3.0    3.0       .045       3.00       0
                                          OVERFLOW   150.0     3268.    .0361    10.0   10.0       .050      20.00
  105       103         0         4     CHANNEL        5.0     4560.    .0811     3.0    3.0       .045       3.00       0
                                          OVERFLOW   100.0     4332.    .0854    10.0   10.0       .050      20.00
  106       102         0         4     CHANNEL        5.0     6380.    .0690     3.0    3.0       .045       3.00       0
                                          OVERFLOW    70.0     6061.    .0726    10.0   10.0       .050      20.00
  103       102         0         4     CHANNEL        8.0     1380.    .0362     4.0   40.0       .050       3.00       0
                                          OVERFLOW    68.0     1311.    .0381    25.0   25.0       .055      20.00
  102       101         0         4     CHANNEL       11.0     5220.    .0383     8.0    8.0       .055       3.00       0
                                          OVERFLOW   100.0     4959.    .0403     5.0    5.0       .060      20.00
  114       112         0         1     CHANNEL        5.0     4500.    .1467     5.0    5.0       .060       8.00       0
  115       112         0         1     CHANNEL        5.0     3240.    .1759     5.0    5.0       .060       8.00       0
  112       110         0         4     CHANNEL        5.0     3640.    .1745     3.0    3.0       .055       2.50       0
                                          OVERFLOW    40.0     3458.    .1837    10.0    8.0       .060      20.00
  113       110         0         4     CHANNEL        5.0     5060.    .1690     3.0    3.0       .055       3.00       0
                                          OVERFLOW    40.0     4807.    .1779    10.0   10.0       .060      20.00
  110       109         0         4     CHANNEL       11.0     4140.    .0531     4.0    4.0       .055       3.00       0
                                          OVERFLOW    60.0     3933.    .0559    50.0   50.0       .060      20.00
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  111       109         0         4    CHANNEL        5.0    5600.     .2348    3.0   3.0      .050      2.00       0
                                         OVERFLOW    20.0    5320.     .2472    6.0   6.0      .055     20.00
  108       107         0         4    CHANNEL        5.0    6240.     .1875    3.0   3.0      .050      2.00       0
                                         OVERFLOW    20.0    5928.     .1974    6.0   6.0      .055     20.00
  109       107         0         4    CHANNEL       11.0    2760.     .0525    4.0   4.0      .050      3.00       0
                                         OVERFLOW    60.0    2622.     .0553    6.0   6.0      .055     20.00
  107       101         0         4    CHANNEL       11.0    2720.     .0368    4.0   4.0      .050      3.00       0
                                         OVERFLOW    45.0    2584.     .0387    6.0   6.0      .055     20.00
  101        99         0         4    CHANNEL       11.0    1380.     .0268    4.0   4.0      .050      3.00       0
                                         OVERFLOW    50.0    1311.     .0282    5.0   5.0      .055     20.00
  100        99         0         4    CHANNEL        5.0    9980.     .1735    3.0   3.0      .050      2.00       0
                                         OVERFLOW    25.0    9481.     .1826    5.0   5.0      .055     20.00
   99        97         0         4    CHANNEL       11.0    1440.     .0299    4.0   4.0      .050      3.00       0
                                         OVERFLOW    50.0    1368.     .0315    5.0   5.0      .055     20.00
   98        97         0         4    CHANNEL        8.0    7000.     .1179    3.0   3.0      .050      2.00       0
                                         OVERFLOW    35.0    6650.     .1241    6.0   6.0      .055     20.00
   97        94         0         4    CHANNEL       11.0    5720.     .0332    4.0   4.0      .050      2.50       0
                                         OVERFLOW    50.0    5434.     .0349    4.0   4.0      .055     20.00
   94        74         0         4    CHANNEL       32.0    2560.     .0120    4.0   4.0      .040      3.50       0
                                         OVERFLOW   150.0    2560.     .0120    8.0   8.0      .050     25.00
   72        71         0         1    CHANNEL       10.0    4480.     .0808    5.0   5.0      .055     15.00       0
   73        71         0         1    CHANNEL       10.0    8000.     .0303    8.0   8.0      .055     15.00       0
   71        59         0         1    CHANNEL       12.0    4820.     .0664    5.0   5.0      .060     15.00       0
   59        46         0         4    CHANNEL       30.0    4020.     .0140    4.0   4.0      .050      4.00       0
                                         OVERFLOW    60.0    4020.     .0140    3.0   3.0      .055     25.00
   63        61         0         1    CHANNEL        9.0    6420.     .0779    5.0   5.0      .070     20.00       0
   64        61         0         1    CHANNEL        9.0    2020.     .0198    5.0   5.0      .070     20.00       0
   61        62         0         1    CHANNEL       12.0    7500.     .0633    5.0   5.0      .070     20.00       0
   60        46         0         1    CHANNEL       12.0    4080.     .1262    5.0   5.0      .060     20.00       0
   46        42         0         4    CHANNEL       25.0    3220.     .0300    3.0   3.0      .055      5.00       0
                                         OVERFLOW    50.0    3220.     .0300    4.0   4.0      .060     25.00
   66        65         0         1    CHANNEL        9.0    3060.     .2026    4.0   4.0      .060     15.00       0
   67        65         0         4    CHANNEL       10.0    6620.     .0853    3.0   3.0      .050      4.00       0
                                         OVERFLOW    45.0    6289.     .0898    3.0   3.0      .060     25.00
   65        62         0         4    CHANNEL       15.0    3960.     .0088    3.0   3.0      .050      4.00       0
                                         OVERFLOW    50.0    3762.     .0093    3.0   3.0      .060     25.00
   62        42         0         1    CHANNEL       12.0    1400.     .2629    5.0   5.0      .070     20.00       0
   69        68         0         1    CHANNEL       10.0    3740.     .1056    6.0   6.0      .055     15.00       0
   70        68         0         1    CHANNEL       12.0    6960.     .0912    6.0   6.0      .055     15.00       0
   68        42         0         1    CHANNEL       12.0    2120.     .1203    5.0   5.0      .060     15.00       0
   41        40         0         1    CHANNEL       12.0    3100.     .2423    5.0   5.0      .060     20.00       0
   42        40         0         4    CHANNEL       20.0    7580.     .0500    3.0   3.0      .055      4.00       0
                                         OVERFLOW    50.0    7580.     .0500    2.0   2.0      .060     25.00
   40        16         0         4    CHANNEL       20.0    3000.     .0330 .  3.0   3.0      .055      4.00       0
                                         OVERFLOW    50.0    3000.     .0330    2.0   2.0      .060     25.00
   20        18         0         1    CHANNEL       10.0    5340.     .0534    8.0   8.0      .050     15.00       0
   18        17         0         4    CHANNEL       11.0    7600.     .0605    3.0   3.0      .050      3.00       0
                                         OVERFLOW    40.0    7220.     .0637    5.0   5.0      .055     20.00
   21        17         0         1    CHANNEL       10.0    6960.     .1042    5.0   5.0      .060     15.00       0
   17        16         0         4    CHANNEL       11.0    1000.     .0493   10.0  10.0      .040      3.00       0
                                         OVERFLOW    40.0    1000.     .0493    8.0   8.0      .055     20.00
   14        15         0         1    CHANNEL       15.0    3080.     .2662    3.0   3.0      .060     15.00       0
   15         8         0         3                    .0       1.     .0010     .0    .0      .001     10.00       0
   16        15         0         3                    .0       1.     .0010     .0    .0      .001     10.00       0
    8       397         0         3                    .0       1.     .0010     .0    .0      .001     10.00       0
  397         6        14         2    PIPE            .1       1.     .0050     .0    .0      .013       .10       0
                    RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                           .0        .0     207.0   170.0      415.0   476.0      833.0  1330.0     1254.0  2417.0     1677.0  3673.0
                       2104.0    5078.0    2535.0  6591.0     2968.0  8200.0     3405.0  9896.0     3847.0 12853.0     4292.0 16870.0
                       6098.0   37861.0    7880.0 91713.0
   38        37         0         1    CHANNEL       12.0    5060.     .1146   15.0  15.0      .050     15.00       0
   39        37         0         1    CHANNEL       10.0    5140.     .0807   10.0  10.0      .050     20.00       0
   37        23         0         4    CHANNEL       11.0    8160.     .0386    4.0   4.0      .050      3.00       0
                                         OVERFLOW    60.0    7752.     .0406   25.0  25.0      .055     20.00
   35        34         0         1    CHANNEL       10.0    3140.     .0930   10.0  10.0      .050     15.00       0
   36        34         0         1    CHANNEL       12.0    5340.     .0549   15.0  15.0      .050     15.00       0
   34        23         0         4    CHANNEL       11.0    6840.     .0450    4.0   4.0      .050      3.00       0
                                         OVERFLOW    50.0    6498.     .0474   25.0  25.0      .055     20.00
   32        31         0         1    CHANNEL        8.0    3260.     .0883    8.0   8.0      .055     15.00       0
   33        31         0         1    CHANNEL        8.0    5180.     .0788    8.0   8.0      .055     15.00       0
   31        23         0         1    CHANNEL       12.0    2720.     .0393   10.0  10.0      .055     15.00       0
   23        22         0         4    CHANNEL       11.0    4920.     .0315    3.0   3.0      .050      3.00       0
                                         OVERFLOW    50.0    4674.     .0332   10.0  10.0      .055     20.00
   29        28         0         1    CHANNEL        5.0    3060.     .1471    6.0   6.0      .055     15.00       0
   30        28         0         1    CHANNEL       12.0    5780.     .0484   15.0  15.0      .050     15.00       0
   27        26         0         1    CHANNEL       10.0    2540.     .1693   10.0  10.0      .040     15.00       0
   28        26         0         4    CHANNEL       11.0    2520.     .0595   10.0  10.0      .040      3.00       0
                                         OVERFLOW    80.0    2394.     .0626   25.0  25.0      .045     15.00
   25        24         0         1    CHANNEL        6.0    5920.     .1309    8.0   8.0      .050     15.00       0
   26        24         0         4    CHANNEL       12.0    1860.     .0242    4.0   4.0      .050      3.00       0
                                         OVERFLOW    80.0    1767.     .0255   10.0  10.0      .055     15.00
   24        22         0         4    CHANNEL       12.0    1740.     .0287    4.0   4.0      .050      3.00       0
                                         OVERFLOW   100.0    1653.     .0302   10.0  10.0      .055     20.00
   22         8         0         4    CHANNEL       11.0    3600.     .0658    3.0   3.0      .050      3.00       0
                                         OVERFLOW    40.0    3600.     .0658    6.0   6.0      .055     20.00
    9         7         0         4    CHANNEL        3.0   10320.     .1556    3.0   3.0      .060      2.00       0
                                         OVERFLOW    20.0    9804.     .1638    2.0   2.0      .080     25.00
   10         7         0         1    CHANNEL       15.0    3760.     .1293    3.0   3.0      .040     15.00       0
    7         5         0         4    CHANNEL        5.0    4940.     .0656    2.0   2.0      .060      2.50       0
                                         OVERFLOW    25.0    4693.     .0691    2.0   2.0      .080     20.00
    3         2         0         1    CHANNEL       25.0   11000.     .0682    4.0   4.0      .040     15.00       0
    4         2         0         1    CHANNEL       25.0   12780.     .1033    4.0   4.0      .040     15.00       0
    2         1         0         4    CHANNEL        8.0    7240.     .0631    2.0   2.0      .070      3.00       0
                                         OVERFLOW    30.0    6878.     .0664    2.0   2.0      .080     20.00
    6         5         0         4    CHANNEL       35.0    4840.     .0340    2.0   2.0      .055      4.00       0
                                         OVERFLOW    60.0    4840.     .0340    2.0   2.0      .065     25.00
    5         1         0         4    CHANNEL       30.0    4960.     .0240    2.0   2.0      .055      4.00       0
                                         OVERFLOW    55.0    4960.     .0240    2.0   2.0      .065     25.00
    1       245         0         4    CHANNEL       30.0   10240.     .0240    2.0   2.0      .055      4.00       0
                                         OVERFLOW    55.0   10240.     .0240    2.0   2.0      .065     25.00
   11        13         0         1    CHANNEL       12.0    3000.     .1200    3.0   3.0      .040     15.00       0
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    12        13         0        1     CHANNEL      12.0     4180.     .1340     3.0   3.0      .040      15.00        0
    13         5         0        4     CHANNEL      15.0     5240.     .1202     4.0   4.0      .040       5.00        0
                                          OVERFLOW  100.0     4978.     .1265    40.0  40.0      .045      20.00
   248       250         0        4     CHANNEL      25.0     9340.     .0931     4.0   4.0      .060       5.00        0
                                          OVERFLOW  100.0     8873.     .0980    40.0  40.0      .080      20.00
   249       250         0        4     CHANNEL      20.0     3940.     .0964     4.0   4.0      .060       5.00        0
                                          OVERFLOW   80.0     3743.     .1015    40.0  40.0      .080      20.00
   247       246         0        4     CHANNEL      25.0     8120.     .0924     4.0   4.0      .060       5.00        0
                                          OVERFLOW  100.0     7714.     .0973    40.0  40.0      .080      20.00
   250       246         0        4     CHANNEL      25.0     2060.     .0485     4.0   4.0      .060       5.00        0
                                          OVERFLOW  100.0     1957.     .0511    40.0  40.0      .080      20.00
   246       245         0        4     CHANNEL      25.0     4660.     .0676     4.0   4.0      .060       5.00        0
                                          OVERFLOW  100.0     4427.     .0712    40.0  40.0      .080      20.00
   244        52         0        4     CHANNEL      25.0     8700.     .0989     4.0   4.0      .070       5.00        0
                                          OVERFLOW  100.0     8265.     .1041    40.0  40.0      .080      20.00
   245        52         0        4     CHANNEL      30.0     3060.     .0300     3.0   3.0      .070       4.00        0
                                          OVERFLOW   60.0     3060.     .0300     2.0   2.0      .080      20.00
    54        53         0        1     CHANNEL       5.0     4000.     .1500     3.0   3.0      .060      15.00        0
    55        53         0        1     CHANNEL       5.0     5500.     .1382     3.0   3.0      .060      15.00        0
    53        52         0        1     CHANNEL       5.0     1200.     .1083     3.0   3.0      .060      15.00        0
    51        50         0        4     CHANNEL       5.0     5200.     .1327     4.0   4.0      .060       5.00        0
                                          OVERFLOW  100.0     4940.     .1397    40.0  40.0      .080      20.00
    52        50         0        4     CHANNEL      35.0     9160.     .0218     3.0   3.0      .055       4.00        0
                                          OVERFLOW   65.0     9160.     .0218     2.0   2.0      .065      25.00
    50        48         0        4     CHANNEL      40.0     3400.     .0294     5.0   5.0      .060       4.00        0
                                          OVERFLOW  150.0     3400.     .0294    75.0  75.0      .080      25.00
    57        56         0        4     CHANNEL      25.0     8400.     .1262     4.0   4.0      .060       5.00        0
                                          OVERFLOW  100.0     7980.     .1328    40.0  40.0      .080      20.00
    58        56         0        1     CHANNEL       5.0     2200.     .1636     3.0   3.0      .060      15.00        0
    56        50         0        4     CHANNEL      25.0    10000.     .0930     4.0   4.0      .070       5.00        0
                                          OVERFLOW  100.0     9500.     .0979    40.0  40.0      .080      20.00
    49        48         0        1     CHANNEL      12.0     3200.     .2594     3.0   3.0      .060       8.00        0
    48      1626         0        4     CHANNEL      30.0     4700.     .0133     2.0   2.0      .070       5.00        0
                                          OVERFLOW  200.0     4700.     .0133     2.0   2.0      .085      25.00
  1238      1927         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1927       238         0        4     CHANNEL      15.0      964.     .0012     3.5   3.5      .045       4.00        0
                                          OVERFLOW   70.0      964.     .0012     7.5   5.0      .055      20.00
  1295       295         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
   295      1296        10        2     PIPE           .1        1.     .0010      .0    .0      .030        .10        0
                        RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                            .0      .0      8.3       .5     17.8    1.0      28.1    10.5      39.4     18.2      52.5   23.5
                          68.3   278.0     86.7   1321.5    107.1 5035.0     150.0 10000.0
  1296       296         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
   296      1382         6        3                    .0        1.     .0010      .0    .0      .001      10.00     1383
                        DIVERSION TO GUTTER NUMBER1383 - TOTAL Q VS DIVERTED Q IN CFS
                            .0      .0     24.0       .1    278.0  250.0    1321.0  1290.0    5035.0   5000.0   10000.0 9964.0
  1382      1381         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
   384      1820         0        5     PIPE          3.0     4047.     .0176      .0    .0      .020       3.00        0
                                          OVERFLOW    1.0     4047.     .0176    20.0  20.0      .020      50.00
  1820       383         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1383      1820         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
   383      1405         8        3                    .0        1.     .0010      .0    .0      .001      10.00     1360
                        DIVERSION TO GUTTER NUMBER1360 - TOTAL Q VS DIVERTED Q IN CFS
                            .0      .0    150.0      1.0    223.0   23.0     285.0    75.0     426.0    201.0    1592.0 1342.0
                        3953.0  3653.0  10000.0   9680.0
  1405      1381         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1381       382         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
   382       381         0        5     PIPE          7.5     1142.     .0020      .0    .0      .015       7.50        0
                                          OVERFLOW    7.5     1142.     .0020    20.0  20.0      .015      50.00
   381      1926         4        3                    .0        1.     .0010      .0    .0      .001      10.00     1366
                        DIVERSION TO GUTTER NUMBER1366 - TOTAL Q VS DIVERTED Q IN CFS
                            .0      .0    150.0      1.0    342.0  182.0    2438.0  2050.0
   369      1821         0        4     CHANNEL        .5     1030.     .0089    12.0  12.0      .016        .50        0
                                          OVERFLOW   10.0     1030.     .0089    20.0  20.0      .020      10.00
  1926      1821         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1821       380         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
   380       379         0        1     CHANNEL       8.0      754.     .0040     1.5   1.5      .050      10.00        0
   379      1406         4        3                    .0        1.     .0010      .0    .0      .001      10.00     1367
                        DIVERSION TO GUTTER NUMBER1367 - TOTAL Q VS DIVERTED Q IN CFS
                            .0      .0    180.0       .1    629.0  354.0    3656.0  3293.0
  1406      1378         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1404      1378         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1378       378         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
   378      1925         5        3                    .0        1.     .0010      .0    .0      .001      10.00     1289
                        DIVERSION TO GUTTER NUMBER1289 - TOTAL Q VS DIVERTED Q IN CFS
                            .0      .0     90.0      1.0     95.0    5.0     363.0   253.0     528.0    390.0
  1925       377         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
   377       242         0        1     CHANNEL       8.0     2080.     .0040     1.5   1.5      .055      10.00        0
  1715      1716         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1716      1517         0        4     CHANNEL      10.0     3321.     .0032     8.0   8.0      .035        .50        0
                                          OVERFLOW   30.0     3321.     .0032    80.0  80.0      .035      15.00
  1515      1517         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1517      1522         0        4     CHANNEL       4.0      851.     .0035     8.0   8.0      .035        .50        0
                                          OVERFLOW   20.0      851.     .0035    60.0  60.0      .035      15.00
  1541      1542         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1542      1544         0        4     CHANNEL       5.0    10122.     .0260     4.0   4.0      .040       2.00        0
                                          OVERFLOW   30.0    10122.     .0260    80.0  80.0      .045      15.00
  1520      1521         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1525      1526         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1528      1428         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1428      1429         0        4     CHANNEL       4.0     1682.     .0131     2.0   2.0      .025       2.00        0
                                          OVERFLOW  400.0     1682.     .0131    40.0  40.0      .035      15.00
  1415      1416         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1550      1551         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1560      1561         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1561      1563         0        4     CHANNEL       3.0     2480.     .1940     4.0   4.0      .050       2.00        0
                                          OVERFLOW   25.0     2480.     .1940    50.0  50.0      .055      15.00
  1565      1566         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
  1566      1563         0        4     CHANNEL       3.0     2240.     .2140     4.0   4.0      .050       2.00        0
                                          OVERFLOW   25.0     2240.     .2140     6.0   6.0      .055      15.00
  1563      1551         0        3                    .0        1.     .0010      .0    .0      .001      10.00        0
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1551      1553       0       4   CHANNEL       3.0    8900.    .0560     5.0   5.0     .040      2.00       0
                                   OVERFLOW   30.0    8900.    .0560    50.0  50.0     .045     10.00
1570      1571       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1571      1557       0       1   CHANNEL       5.0    1200.    .2670    40.0  40.0     .055     10.00       0
1556      1557       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1557      1553       0       4   CHANNEL       3.0    5620.    .0240     5.0   5.0     .040      2.00       0
                                   OVERFLOW   25.0    5620.    .0240    40.0  40.0     .045     15.00
1553      1416       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1416      1429       0       4   CHANNEL       5.0    4085.    .0225     4.0   4.0     .050      2.00       0
                                   OVERFLOW   25.0    4085.    .0225    40.0  40.0     .055     15.00
1429      1526       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1526      1532       0       4   CHANNEL       2.0    1410.    .0136     2.0   2.0     .055      2.00       0
                                   OVERFLOW  400.0    1410.    .0136    40.0  40.0     .065     15.00
1530      1531       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1545      1546       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1575      1576       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1576      1546       0       4   CHANNEL       2.0    3500.    .0229     5.0   5.0     .050      2.00       0
                                   OVERFLOW   30.0    3500.    .0229    50.0  50.0     .055     15.00
1546      1531       0       4   CHANNEL       5.0    7763.    .0840     4.0   4.0     .050      2.00       0
                                   OVERFLOW   30.0    7763.    .0840    75.0  75.0     .055     15.00
1531      1532       0       4   CHANNEL       5.0    5288.    .0872     4.0   4.0     .040      2.00       0
                                   OVERFLOW   30.0    5288.    .0872    80.0  80.0     .045     15.00
1532      1537       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1537      1533       0       4   CHANNEL       2.0    1127.    .0035     2.0   2.0     .035      2.00       0
                                   OVERFLOW  400.0    1127.    .0035     5.0  40.0     .035     15.00
1414      1534       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1534      1533       0       4   CHANNEL      10.0    1966.    .0080     5.0   5.0     .050      1.00       0
                                   OVERFLOW  400.0    1966.    .0080    50.0   3.0     .065     15.00
1533      1521       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1521      1544       0       4   CHANNEL       4.0    2633.    .0093     2.0   2.0     .050      2.00       0
                                   OVERFLOW  500.0    2633.    .0093    25.0  25.0     .065     10.00
1544      1548       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1548      1522       0       4   CHANNEL       4.0    1054.    .0038     8.0   8.0     .035       .50       0
                                   OVERFLOW  500.0    1054.    .0038    60.0  60.0     .035     15.00
1522      1511       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1510      1511       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1511      1513       0       4   CHANNEL       4.0    3213.    .0057     2.0   2.0     .050      2.00       0
                                   OVERFLOW  512.0    3213.    .0057    50.0  50.0     .060     10.00
1513      1514       8       3                  .0       1.    .0010      .0    .0     .001     10.00    1508
                   DIVERSION TO GUTTER NUMBER1508 - TOTAL Q VS DIVERTED Q IN CFS
                          .0     .0      50.0     .1     140.0    48.0     415.0   192.0     1791.0 1299.0     3930.0 3176.0
                      7762.0 6551.0   15011.0 13210.0
1514      1442       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1442      1935       0       4   CHANNEL       2.0    2252.    .0097     4.0   4.0     .040      1.00       0
                                   OVERFLOW  300.0    2252.    .0097    80.0  80.0     .060     15.00
1262      1916       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1916      1935       0       4   CHANNEL       2.0    1211.    .0046     5.0   3.0     .035      1.00       0
                                   OVERFLOW  400.0    1211.    .0046   100.0   3.0     .035     20.00
1935       262       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
 262       263       0       4   CHANNEL       2.0     529.    .0058     5.0   3.0     .035      1.00       0
                                   OVERFLOW  500.0     529.    .0058   150.0   3.0     .035     20.00
 263      1905       8       3                  .0       1.    .0010      .0    .0     .001     10.00     266
                   DIVERSION TO GUTTER NUMBER 266 - TOTAL Q VS DIVERTED Q IN CFS
                          .0     .0     175.0  174.9     412.0   185.0     908.0   198.0     1902.0  212.0     3161.0  228.0
                      6477.0  233.0   13854.0  256.0
1905       264       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
 264       265       0       4   CHANNEL       2.0    1138.    .0017     5.0   3.0     .035       .50       0
                                   OVERFLOW  600.0    1138.    .0017   150.0   3.0     .035     20.00
 265       269       8       3                  .0       1.    .0010      .0    .0     .001     10.00    1267
                   DIVERSION TO GUTTER NUMBER1267 - TOTAL Q VS DIVERTED Q IN CFS
                          .0     .0     170.0  169.9     227.0   195.0     710.0   516.0     1689.0 1249.0     2933.0 1956.0
                      6244.0 3358.0   13598.0 6585.0
 269      1294       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1294       294       0       4   CHANNEL       2.0    1043.    .0027     4.0   4.0     .025      1.00       0
                                   OVERFLOW  375.0    1043.    .0027    80.0   3.0     .035     15.00
 304       294       0       1   CHANNEL       8.0    2370.    .0060     5.0   5.0     .035     10.00       0
 299       303       0       4   CHANNEL        .5    3612.    .0400    12.0  12.0     .016       .50       0
                                   OVERFLOW   24.0    3612.    .0400    20.0  20.0     .020     10.00
 301       300       0       4   CHANNEL        .5    3743.    .0800    12.0  12.0     .016       .50       0
                                   OVERFLOW   24.0    3743.    .0800    20.0  20.0     .020     10.00
 300      1922       5       2   PIPE           .1       1.    .0010      .0    .0     .030       .10       0
                   RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                          .0     .0       5.4   10.0      28.7    11.0      36.6    32.0       39.3  468.0
1922       303       0       4   CHANNEL        .5     899.    .0667    12.0  12.0     .016       .50       0
                                   OVERFLOW   10.0     899.    .0667    20.0  20.0     .020     10.00
 303       298       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
 298       297      11       2   PIPE           .1       1.    .0010      .0    .0     .030       .10       0
                   RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                          .0     .0        .1   15.0        .5    45.0       1.4    94.0        2.9  130.0        5.3  158.0
                         9.3  182.0      12.2  192.0      15.9   225.0      20.4   286.0       25.0  827.0
 297      1921       0       4   CHANNEL       6.0    5106.    .0250     3.0   3.0     .045      6.00       0
                                   OVERFLOW   50.0    6800.    .0188     3.0   3.0     .035     10.00
1917      1921       0       4   CHANNEL       5.0    1894.    .0079     8.0   8.0     .035      1.00       0
                                   OVERFLOW   40.0    1894.    .0079    80.0  80.0     .035     15.00
1921      1920       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
1920       294       0       4   CHANNEL      18.0     785.    .0013     6.0   6.0     .035      6.00       0
                                   OVERFLOW  100.0     785.    .0013    12.0  12.0     .035     15.00
 294       280       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
 280      1293       6       3                  .0       1.    .0010      .0    .0     .001     10.00    1295
                   DIVERSION TO GUTTER NUMBER1295 - TOTAL Q VS DIVERTED Q IN CFS
                          .0     .0     295.0    1.0     370.0    42.0    1046.0   661.0     2827.0 2327.0     8734.0 8169.0
1293       293       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
 293       267       0       5   PIPE          8.5     757.    .0020      .0    .0     .015      8.50       0
                                   OVERFLOW    8.5     757.    .0020      .0    .0     .015     20.00
1267       267       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
 267       268       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
 268      1291       8       2   PIPE           .1       1.    .0010      .0    .0     .030       .10       0
                   RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                          .0     .0       1.4   81.0       5.0   267.0      10.4   465.0       16.9  632.0       25.0 1145.0
                        35.1 1888.0     140.0 10000.0
1291       291       0       3                  .0       1.    .0010      .0    .0     .001     10.00       0
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   291        1290          6          3                     .0         1.     .0010       .0     .0       .001       10.00      1923
                           DIVERSION TO GUTTER NUMBER1923 - TOTAL Q VS DIVERTED Q IN CFS
                                  .0        .0      515.0       1.0     1249.0     471.0     1956.0  1098.0      6585.0   5685.0    10000.0  9000.0
  1290         290          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
   290        1924          0          4      CHANNEL      30.0      1375.     .0017      4.0    4.0       .045        6.00         0
                                                OVERFLOW  100.0      1375.     .0017     20.0   20.0       .050       15.00
  1289        1924          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1924         289          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
   289         242          0          4      CHANNEL      30.0      1962.     .0017      4.0    4.0       .045        6.00         0
                                                OVERFLOW  100.0      1962.     .0017     20.0   20.0       .050       15.00
  1505        1506          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1410        1411          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1420        1421          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1435        1436          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1436        1438          0          4      CHANNEL       2.0      3730.     .0350      4.0    4.0       .050        3.00         0
                                                OVERFLOW   30.0      3730.     .0350     16.0   16.0       .055       15.00
  1430        1431          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1431        1438          0          4      CHANNEL       2.0      1670.     .0820      4.0    4.0       .040        1.00         0
                                                OVERFLOW   12.0      1670.     .0820     15.0   15.0       .045       15.00
  1438        1426          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1425        1426          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1426        1421          0          4      CHANNEL       5.0      2319.     .0190      8.0    8.0       .040        2.00         0
                                                OVERFLOW   40.0      2319.     .0190     75.0   75.0       .045       15.00
  1445        1446          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1446        1453          0          4      CHANNEL       2.0      6667.     .0606      3.0    3.0       .040        3.00         0
                                                OVERFLOW   25.0      6667.     .0606      6.0    6.0       .045       15.00
  1645        1646          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1646        1643          0          4      CHANNEL       5.0      5300.     .1450      4.0    4.0       .060        2.00         0
                                                OVERFLOW   25.0      5300.     .1450     15.0   15.0       .065       15.00
  1640        1641          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1641        1643          0          4      CHANNEL       2.0      5800.     .0160      3.0    3.0       .060        3.00         0
                                                OVERFLOW   25.0      5800.     .0160      8.0    8.0       .065       15.00
  1643        1631          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1630        1631          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1631        1628          0          4      CHANNEL      10.0      7611.     .0730      4.0    4.0       .040        3.00         0
                                                OVERFLOW   40.0      7611.     .0730     10.0   10.0       .045       15.00
  1625        1626          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1635        1636          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1636        1626          0          1      CHANNEL       2.0      4200.     .0840      8.0    8.0       .040       10.00         0
  1626        1628          0          4      CHANNEL      25.0      1908.     .0205      4.0    4.0       .070        2.00         0
                                                OVERFLOW  100.0      1908.     .0205     75.0   75.0       .075       15.00
  1628        1611          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1610        1611          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1611        1928          0          4      CHANNEL      30.0      4400.     .0290      4.0    4.0       .060        2.50         0
                                                OVERFLOW  150.0      4400.     .0290     75.0   75.0       .070       15.00
  1605        1606          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1665        1666          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1666        1606          0          4      CHANNEL       3.0      6900.     .2130      3.0    3.0       .050        2.00         0
                                                OVERFLOW   20.0      6900.     .2130      2.0    2.0       .055       10.00
  1606        1928          0          4      CHANNEL       5.0      5987.     .0812      4.0    4.0       .045        2.00         0
                                                OVERFLOW   25.0      5987.     .0812      3.0    3.0       .060       15.00
  1928        1601          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1600        1601          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1601        1603          0          4      CHANNEL      25.0      1264.     .0290      6.0    6.0       .060        2.50         0
                                                OVERFLOW   85.0      1264.     .0290     80.0   80.0       .070       15.00
  1710        1711          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1711        1712          0          4      CHANNEL       5.0      5430.     .0479      4.0    4.0       .035        1.00         0
                                                OVERFLOW   30.0      5430.     .0479      5.0    5.0       .035       15.00
  1615        1616          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1616        1623          0          4      CHANNEL       2.0      6409.     .0620      3.0    3.0       .040        3.00         0
                                                OVERFLOW   20.0      6409.     .0620      5.0    5.0       .045       15.00
  1660        1661          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1661        1651          0          4      CHANNEL       3.0      9600.     .1670      4.0    4.0       .060        3.00         0
                                                OVERFLOW   25.0      9600.     .1670      3.0    3.0       .065       15.00
  1650        1651          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1651        1653          0          4      CHANNEL       5.0      4100.     .0860      4.0    4.0       .050        3.00         0
                                                OVERFLOW   25.0      4100.     .0860      3.0    3.0       .055       15.00
  1655        1656          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1656        1653          0          4      CHANNEL       3.0     10800.     .1170      4.0    4.0       .050        3.00         0
                                                OVERFLOW   25.0     10800.     .1170      3.0    3.0       .055       15.00
  1653        1621          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1620        1621          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1621        1623          0          4      CHANNEL       5.0     10100.     .0320      5.0    5.0       .045        3.00         0
                                                OVERFLOW   35.0     10100.     .0320      2.0    2.0       .060       15.00
  1623        1624          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1705        1624          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1624        1712          0          4      CHANNEL       2.0      2490.     .0380      5.0    5.0       .050        2.00         0
                                                OVERFLOW   25.0      2490.     .0380      5.0    5.0       .050       10.00
  1712        1929          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1929        1603          0          4      CHANNEL      10.0      1172.     .0043     10.0   10.0       .035         .50         0
                                                OVERFLOW   20.0      1172.     .0043     40.0   40.0       .035       15.00
  1603        1451          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1450        1451          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1451        1453          0          4      CHANNEL      30.0      2963.     .0110      6.0    6.0       .060        2.50         0
                                                OVERFLOW  110.0      2963.     .0110     80.0   80.0       .070       15.00
  1453        1441          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1440        1441          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1441        1421          0          4      CHANNEL      30.0      3235.     .0078      4.0    4.0       .060        2.50         0
                                                OVERFLOW  110.0      3235.     .0078     75.0   75.0       .070       15.00
  1421        1423          0          4      CHANNEL      30.0       800.     .0120      4.0    4.0       .060        2.50         0
                                                OVERFLOW  120.0       800.     .0120     75.0   75.0       .090       15.00
  1423        1424          8          3                     .0         1.     .0010       .0     .0       .001       10.00      1528
                           DIVERSION TO GUTTER NUMBER1528 - TOTAL Q VS DIVERTED Q IN CFS
                                  .0        .0     1000.0       1.0     2000.0     114.0     3100.0   335.0      4000.0    597.0     5683.0  1262.0
                            10000.0  2575.0   18600.0  5243.0
  1424        1411          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1411        1412          0          4      CHANNEL      30.0      3369.     .0084      4.0    4.0       .060        2.50         0
                                                OVERFLOW  160.0      3369.     .0084     75.0   75.0       .065       15.00
  1412        1413          0          3                     .0         1.     .0010       .0     .0       .001       10.00         0
  1413        1509          9          3                     .0         1.     .0010       .0     .0       .001       10.00      1414
                           DIVERSION TO GUTTER NUMBER1414 - TOTAL Q VS DIVERTED Q IN CFS
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                                 .0        .0     500.0       1.0     999.0     125.0    1886.0     841.0    2765.0    1456.0    3403.0    1937.0
                             4421.0    2668.0    7425.0    5187.0   13357.0   10368.0
 1509       1800         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1490       1491         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1455       1456         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1938       1480         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1480       1481         0         4      CHANNEL        5.0     2400.     .0500       2.0   2.0        .040         2.00        0
                                            OVERFLOW    20.0     2400.     .0500      10.0  10.0        .045        10.00
 1481       1482         7         2      PIPE            .0        1.     .0010        .0    .0        .030          .10        0
                             RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                                 .0        .0     308.0      18.0     624.0      76.0     947.0     179.0    1279.0     318.0    1618.0    1676.0
                             1965.0    4700.0
 1482       1456         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1456       1457         0         1      CHANNEL        2.0     4450.     .0363      80.0  80.0        .030        20.00        0
 1457       1491         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1491       1931         0         4      CHANNEL        5.0    10236.     .0090       4.0   4.0        .050         2.00        0
                                            OVERFLOW    25.0    10236.     .0090      60.0  60.0        .065        15.00
 1460       1461         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1461       1931         0         4      CHANNEL        3.0     2286.     .0280       4.0   4.0        .050         2.00        0
                                            OVERFLOW    20.0     2286.     .0280      24.0  24.0        .055        15.00
 1931       1933         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1933       1467         0         4      CHANNEL        5.0      403.     .0099       2.0   2.0        .020         2.00        0
                                            OVERFLOW    25.0      403.     .0099      10.0  10.0        .025        15.00
 1465       1932         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1932       1467         0         4      CHANNEL        4.0     1591.     .0289       8.0   8.0        .035          .50        0
                                            OVERFLOW    25.0     1591.     .0289       4.0   4.0        .035        15.00
 1467       1468         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1468       1800         0         4      CHANNEL        5.0     2357.     .0180       2.0   2.0        .020         2.00        0
                                            OVERFLOW    25.0     2357.     .0180      10.0  10.0        .025        15.00
 1800       1506         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1506       1507         0         4      CHANNEL       33.0     8099.     .0054       4.0   4.0        .060         2.50        0
                                            OVERFLOW   800.0     8099.     .0054      10.0  10.0        .065        15.00
 1508       1507         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1507       1512         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1512         44         0         4      CHANNEL       33.0     1367.     .0064       4.0   4.0        .060         2.50        0
                                            OVERFLOW   308.0     1367.     .0064      80.0  80.0        .065        15.00
 1500       1501         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1501         44         0         4      CHANNEL        5.0     8609.     .0212       2.0   2.0        .040         2.00        0
                                            OVERFLOW    20.0     8609.     .0212      10.0  10.0        .045        15.00
   44        261         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  261       1427         9         3                      .0        1.     .0010        .0    .0        .001        10.00     1262
                             DIVERSION TO GUTTER NUMBER1262 - TOTAL Q VS DIVERTED Q IN CFS
                                 .0        .0     500.0       1.0     875.0      35.0    1920.0     315.0    2709.0     660.0    3916.0    1323.0
                             5586.0    2377.0    9768.0    5344.0   18394.0   11928.0
 1427        243         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  243        242         0         4      CHANNEL       65.0     2991.     .0112       2.0   2.0        .043         2.50        0
                                            OVERFLOW   650.0     2991.     .0112     100.0 100.0        .055        15.00
  242        241         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  241        240         0         4      CHANNEL       65.0     5732.     .0100       2.0   2.0        .043         3.00        0
                                            OVERFLOW  1200.0     5732.     .0100     200.0 200.0        .055        20.00
  240        238         0         4      CHANNEL       65.0     2861.     .0100       2.0   2.0        .050         3.00        0
                                            OVERFLOW  1200.0     2861.     .0100     200.0 200.0        .075        20.00
  238        237         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  237        251         5         3                      .0        1.     .0010        .0    .0        .001        10.00      389
                             DIVERSION TO GUTTER NUMBER 389 - TOTAL Q VS DIVERTED Q IN CFS
                                 .0        .0    2060.0       1.0    4980.0    2580.0    6630.0    3530.0   11150.0    7500.0
  389       1906         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1906       1909         0         4      CHANNEL       10.0     3340.     .0042       8.0   8.0        .025          .50        0
                                            OVERFLOW  1200.0     3340.     .0042      80.0  80.0        .025        15.00
  251        233         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  235        239         0         1      CHANNEL        1.0     3509.     .0050      50.0  50.0        .020        10.00        0
  239        234         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  234        232         0         4      CHANNEL        2.0     2072.     .0044       3.0   3.0        .050         2.00        0
                                            OVERFLOW    50.0     2072.     .0044      50.0  50.0        .035        10.00
  233        232         0         4      CHANNEL       65.0     3076.     .0100       2.0   2.0        .050         4.00        0
                                            OVERFLOW   600.0     3076.     .0100     200.0 200.0        .080        20.00
  232        236         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  236        252         5         3                      .0        1.     .0010        .0    .0        .001        10.00     1403
                             DIVERSION TO GUTTER NUMBER1403 - TOTAL Q VS DIVERTED Q IN CFS
                                 .0        .0    2060.0       1.0    2400.0     100.0    3100.0     500.0   10000.0    2500.0
 1403       1599         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  252        231         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1357        357         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  357       1401         6         3                      .0        1.     .0010        .0    .0        .001        10.00     1325
                             DIVERSION TO GUTTER NUMBER1325 - TOTAL Q VS DIVERTED Q IN CFS
                                 .0        .0      26.0        .1     263.0     235.0     391.0     361.0     995.0     960.0    5000.0    4950.0
 1401       1387         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1387        387         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  387       1908         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1908       1320         0         4      CHANNEL        2.0     1718.     .0076       3.0   3.0        .025         2.00        0
                                            OVERFLOW   600.0     1718.     .0076      80.0  80.0        .025        10.00
  266        376         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  376        375         0         1      CHANNEL        4.0     1569.     .0041       4.0   4.0        .050        10.00        0
  375       1374         4         3                      .0        1.     .0010        .0    .0        .001        10.00     1404
                             DIVERSION TO GUTTER NUMBER1404 - TOTAL Q VS DIVERTED Q IN CFS
                                 .0        .0      24.0        .1     135.0     100.0     540.0     500.0
 1374        374         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  374        372         0         4      CHANNEL        4.0     2538.     .0115       3.0   3.0        .045         2.00        0
                                            OVERFLOW    20.0     2538.     .0115      20.0  20.0        .035        10.00
  373        372         0         4      CHANNEL        3.0     1779.     .0075       4.0   4.0        .045         1.00        0
                                            OVERFLOW    20.0     1779.     .0075      20.0  20.0        .035        10.00
 1367        367         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  367        372         0         4      CHANNEL         .5     2663.     .0103      12.0  12.0        .016          .50        0
                                            OVERFLOW    10.0     2663.     .0103      20.0  20.0        .020        10.00
  372        371         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  371        311         0         4      CHANNEL       10.0     2893.     .0078       2.0   2.0        .045         1.00        0
                                            OVERFLOW    10.0     2893.     .0078      50.0  50.0        .035        10.00
 1339       1822         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
 1348        348         0         3                      .0        1.     .0010        .0    .0        .001        10.00        0
  348       1937         5         3                      .0        1.     .0010        .0    .0        .001        10.00     1331
                             DIVERSION TO GUTTER NUMBER1331 - TOTAL Q VS DIVERTED Q IN CFS
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                    .0      .0    31.0    30.0    542.0   335.0     795.0   466.0    1394.0   766.0
  1937      1386       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   385      1386       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1386       386       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   386       395       6       3                   .0       1.     .0010      .0    .0      .001      10.00     1407
                 DIVERSION TO GUTTER NUMBER1407 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0   206.0     1.0    394.0    64.0     902.0   273.0    2616.0   572.0    5000.0  1100.0
   395       394       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   394      1822       0       4   CHANNEL         .5    1000.     .0061    12.0  12.0      .016        .50        0
                                     OVERFLOW    10.0    1000.     .0061    20.0  20.0      .020      10.00
  1822       339       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   339      1313       4       3                   .0       1.     .0010      .0    .0      .001      10.00     1336
                 DIVERSION TO GUTTER NUMBER1336 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0    30.0    20.0    300.0   200.0    3000.0  2000.0
  1313      1939       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1362       362       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   363       362       0       1   CHANNEL        1.0    4078.     .0121    20.0   5.0      .020      10.00        0
   362       398       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   398      1396      10       2   PIPE            .1       1.     .0010      .0    .0      .030        .10        0
                 RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                    .0      .0      .4    26.0      1.3   138.0       2.1   200.0       2.4   260.0       2.8   360.0
                   3.4   510.0     4.0   893.0      5.0  1809.0      15.0 10000.0
  1396       396       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   396       308       7       3                   .0       1.     .0010      .0    .0      .001      10.00      385
                 DIVERSION TO GUTTER NUMBER 385 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0   260.0      .1    360.0    60.0     510.0   190.0     893.0   545.0    1809.0  1388.0
               10000.0  9550.0
   308       314       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   314      1939       0       1   CHANNEL        8.0     600.     .0048      .1   2.0      .050      15.00        0
  1939       313       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   313      1910       6       3                   .0       1.     .0010      .0    .0      .001      10.00     1409
                 DIVERSION TO GUTTER NUMBER1409 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0   260.0      .1    389.0   129.0     470.0   195.0     648.0   358.0   10000.0  9500.0
  1910      1940       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1366       366       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   366       344       0       4   CHANNEL         .5    5533.     .0079    12.0  12.0      .016        .50        0
                                     OVERFLOW    10.0    5533.     .0079    20.0  20.0      .020      10.00
   344      1408       4       3                   .0       1.     .0010      .0    .0      .001      10.00     1339
                 DIVERSION TO GUTTER NUMBER1339 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0    25.0      .1     50.0    25.0    2000.0    35.0
  1408      1940       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1940       312       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   312       311       0       1   CHANNEL        8.0    1520.     .0068     2.0   2.0      .050      10.00        0
   311       358       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   358       393       0       4   CHANNEL        8.0    2401.     .0100     1.5   1.5      .030       4.50        0
                                     OVERFLOW    20.0    2401.     .0100    50.0  50.0      .020      10.00
   393      1357       8       3                   .0       1.     .0010      .0    .0      .001      10.00     1393
                 DIVERSION TO GUTTER NUMBER1393 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0   240.0     1.0    588.0    79.0     874.0   150.0    1822.0   391.0    2281.0   509.0
                3048.0   704.0  4515.0  1075.0
  1393      1941       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1941       392       0       4   CHANNEL        4.0     423.     .0142     4.0   4.0      .030        .50        0
                                     OVERFLOW    30.0     423.     .0142    12.0  12.0      .032      15.00
  1325       325       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1331       331       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1407       331       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   331       337       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   337       328       0       4   CHANNEL         .5    2862.     .0066    12.0  12.0      .016        .50        0
                                     OVERFLOW    10.0    2862.     .0066    20.0  20.0      .020      10.00
  1329       328       0       4   CHANNEL         .5    2288.     .0088    12.0  12.0      .016        .50        0
                                     OVERFLOW    10.0    2288.     .0088    20.0  20.0      .020      10.00
  1340       340       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   340      1333       6       3                   .0       1.     .0010      .0    .0      .001      10.00     1348
                 DIVERSION TO GUTTER NUMBER1348 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0    66.0    31.0    833.0   542.0    1194.0   795.0    2037.0  1394.0    3730.0  2560.0
  1333       333       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   333       332       0       1   CHANNEL        1.0    2969.     .0047    50.0   5.0      .020      20.00        0
   341      1334       6       3                   .0       1.     .0010      .0    .0      .001      10.00     1340
                 DIVERSION TO GUTTER NUMBER1340 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0    71.0    66.0   1120.0   833.0    1616.0  1194.0    2776.0  2037.0    5110.0  3730.0
  1334       334       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   334       332       0       1   CHANNEL        1.0    2967.     .0047     5.0  50.0      .020      20.00        0
   332      1308       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1308      1307       4       3                   .0       1.     .0010      .0    .0      .001      10.00     1306
                 DIVERSION TO GUTTER NUMBER1306 - TOTAL Q VS DIVERTED Q IN CFS
                    .0      .0    56.2    56.1   1080.0    60.5    2500.0    65.0
  1307      1305       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1306       330       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   346       345       0       4   CHANNEL         .5    1855.     .0179    12.0  12.0      .016        .50        0
                                     OVERFLOW    10.0    1855.     .0179    20.0  20.0      .020      10.00
   345       359       0       4   CHANNEL         .5    3689.     .0097    12.0  12.0      .016        .50        0
                                     OVERFLOW    10.0    3689.     .0097    20.0  20.0      .020      10.00
   350      1915       0       5   PIPE           2.0    2980.     .0074      .0    .0      .015       2.00        0
                                     OVERFLOW     1.0    2980.     .0074    20.0  20.0      .020      20.00
  1360       360       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1923       292       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   292       360       0       4   CHANNEL        1.0    1500.     .0027    50.0  50.0      .020       1.00        0
                                     OVERFLOW    15.0    1500.     .0027     4.0   4.0      .020      10.00
   360      1934       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1934      1919       0       4   CHANNEL        1.0    1500.     .0027    50.0  50.0      .020       1.00        0
                                     OVERFLOW    15.0    1500.     .0027     4.0   4.0      .020      10.00
   353      1919       0       4   CHANNEL         .5    1591.     .0037    12.0  12.0      .016        .50        0
                                     OVERFLOW    10.0    1591.     .0037    20.0  20.0      .020      10.00
  1919       352       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
   352      1812       7       2   PIPE            .1       1.     .0010      .0    .0      .030        .10        0
                 RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                    .0      .0      .7    20.0      2.2    31.0       5.8    39.0      12.8   300.0      23.3  3986.0
                  50.0 10000.0
  1812      1813       0       3                   .0       1.     .0010      .0    .0      .001      10.00        0
  1813      1814       7       3                   .0       1.     .0010      .0    .0      .001      10.00     1815
                 DIVERSION TO GUTTER NUMBER1815 - TOTAL Q VS DIVERTED Q IN CFS
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                            .0        .0      40.0        .1     314.0      77.0    1075.0     357.0    2228.0     783.0    4144.0    1719.0
                        6379.0    2711.0
  1814         351          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   351        1913          0         5   PIPE            2.0     2056.      .0117       .0    .0        .015         2.00           0
                                            OVERFLOW     40.0     2056.      .0117      8.0   8.0        .035        15.00
  1815        1816          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1818        1817          0         4   CHANNEL         2.0      354.      .0100      4.0   4.0        .020         1.00           0
                                            OVERFLOW     12.0      354.      .0100     10.0  10.0        .030        10.00
  1816        1817          0         4   CHANNEL         6.0      837.      .0037     12.0  12.0        .015         1.00           0
                                            OVERFLOW     30.0      837.      .0037      8.0   3.0        .030        15.00
  1817         354          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   354        1913          0         5   PIPE            1.5     1345.      .2800       .0    .0        .015         1.50           0
                                            OVERFLOW     24.0     1345.      .2800     20.0   5.0        .035        15.00
  1913        1914          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1914        1915          0         5   PIPE            2.0      756.      .0066       .0    .0        .016         2.00           0
                                            OVERFLOW      1.0      756.      .0066     20.0  20.0        .020        15.00
  1915         347          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   347         359          0         5   PIPE            4.0     2229.      .0173       .0    .0        .015         4.00           0
                                            OVERFLOW     10.0     2229.      .0173     20.0  20.0        .020        20.00
   349         359          0         1   CHANNEL        10.0     2788.      .0217     20.0  20.0        .035        10.00           0
   355         359          0         5   PIPE            2.0     3762.      .0121       .0    .0        .020         2.00           0
                                            OVERFLOW      1.0     3762.      .0121      5.0  20.0        .020        10.00
   359         356          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   356        1343         10         2   PIPE             .1        1.      .0010       .0    .0        .030          .10           0
                    RESERVOIR STORAGE IN ACRE-FEET VS SPILLWAY OUTFLOW
                            .0        .0        .3      14.0       3.4     138.0       5.3     200.0       6.6     210.0       7.7     230.0
                           9.7     332.0      14.5    1712.0      18.2    2617.0      23.4    5064.0
  1343         343          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   343        1342          7         3                    .0        1.      .0010       .0    .0        .001        10.00        1362
                    DIVERSION TO GUTTER NUMBER1362 - TOTAL Q VS DIVERTED Q IN CFS
                            .0        .0     230.0     229.0     332.0     260.0    1712.0     360.0    2617.0     510.0    5064.0     893.0
                        9890.0    1680.0
  1342         342          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   342        1335          6         3                    .0        1.      .0010       .0    .0        .001        10.00        1341
                    DIVERSION TO GUTTER NUMBER1341 - TOTAL Q VS DIVERTED Q IN CFS
                            .0        .0      72.0      71.0    1352.0    1120.0    2107.0    1616.0    4171.0    2776.0    8280.0    5110.0
  1341         341          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1335         335          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   335        1301          0         1   CHANNEL        10.0     3343.      .0047     18.0   5.0        .045        20.00           0
  1301        1302          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1302        1303          4         3                    .0        1.      .0010       .0    .0        .001        10.00        1304
                    DIVERSION TO GUTTER NUMBER1304 - TOTAL Q VS DIVERTED Q IN CFS
                            .0        .0     585.0       1.0    1973.0    1149.0    3964.0    2984.0
  1303         330          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1304        1305          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1305        1599          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   330         329          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   329         328          0         1   CHANNEL         8.0     1804.      .0012      3.5   3.5        .024        20.00           0
  1309        1311          6         3                    .0        1.      .0010       .0    .0        .001        10.00        1312
                    DIVERSION TO GUTTER NUMBER1312 - TOTAL Q VS DIVERTED Q IN CFS
                            .0        .0     725.2        .1     824.2        .2     981.0      51.0    3918.0    1261.0    6125.0    2048.0
  1311         327          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   368        1330          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1312        1330          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1330        1332          0         5   PIPE            1.5     3079.      .0078     10.0  10.0        .025         1.50           0
                                            OVERFLOW     28.0     3079.      .0078      5.0   5.0        .040         5.00
  1332        1368          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1368        1369          3         3                    .0        1.      .0010       .0    .0        .001        10.00        1371
                    DIVERSION TO GUTTER NUMBER1371 - TOTAL Q VS DIVERTED Q IN CFS
                            .0        .0     245.0        .1    3280.0     418.6
  1369        1370          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1370        1365          0         5   PIPE            1.5     1286.      .0030       .0    .0        .025         1.50           0
                                            OVERFLOW     30.0     1286.      .0030     10.0  10.0        .025        15.00
  1371        1372          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1372        1599          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   328        1309          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   327         326          0         4   CHANNEL         8.0     1305.      .0008      3.5   3.5        .024         4.00           0
                                            OVERFLOW     40.0     1305.      .0008      5.7   7.5        .028        20.00
  1409         310          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1336         336          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   336        1310          4         3                    .0        1.      .0010       .0    .0        .001        10.00        1942
                    DIVERSION TO GUTTER NUMBER1942 - TOTAL Q VS DIVERTED Q IN CFS
                            .0        .0      20.0      10.0     200.0     100.0    2000.0    1000.0
  1942        1940          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1310         310          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   310         315          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   315         317          0         4   CHANNEL          .5     3664.      .0088     12.0  12.0        .016          .50           0
                                            OVERFLOW     10.0     3664.      .0088     20.0  20.0        .020        10.00
   316         317          0         4   CHANNEL          .5     2903.      .0079     12.0  12.0        .016          .50           0
                                            OVERFLOW     10.0     2903.      .0079     20.0  20.0        .020        10.00
   317         326          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   326         325          0         4   CHANNEL         8.0      458.      .0008      3.5   3.5        .024         4.00           0
                                            OVERFLOW     40.0      458.      .0008      5.7   7.5        .028        20.00
   325         324          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   324        1392          7         3                    .0        1.      .0010       .0    .0        .001        10.00        1402
                    DIVERSION TO GUTTER NUMBER1402 - TOTAL Q VS DIVERTED Q IN CFS
                            .0        .0     725.1        .1     824.0      98.0     930.0     180.0    2657.0    1833.0    4077.0    3077.0
                       10000.0    8800.0
  1402        1323          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
  1323         323          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   323        1321          7         3                    .0        1.      .0010       .0    .0        .001        10.00        1387
                    DIVERSION TO GUTTER NUMBER1387 - TOTAL Q VS DIVERTED Q IN CFS
                            .0        .0      50.0      49.9     254.0      60.0    1565.0     100.0    2841.0     150.0    4250.0     200.0
                        8800.0     400.0
  1392         392          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   392         391          0         3                    .0        1.      .0010       .0    .0        .001        10.00           0
   391        1911          0         4   CHANNEL        15.0     1048.      .0012      3.5   3.5        .045         5.00           0
                                            OVERFLOW     55.0     1048.      .0012      4.0   7.5        .055        20.00
   338         318          0         4   CHANNEL         1.0     2263.      .0089      1.0   1.0        .045         1.00           0
                                            OVERFLOW     10.0     2263.      .0089     50.0  50.0        .035        10.00
   318        1911          0         4   CHANNEL         8.0     2821.      .0012      3.0   3.0        .045         1.50           0
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                                             OVERFLOW     10.0      2821.     .0012     20.0  20.0       .035       10.00
 1911        1912          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1912         390          0         4     CHANNEL        15.0      1048.     .0012      3.5   3.5       .045        4.00         0
                                             OVERFLOW     70.0      1048.     .0012      7.5   5.0       .055       20.00
  390        1238          7         3                      .0         1.     .0010       .0    .0       .001       10.00       388
                    DIVERSION TO GUTTER NUMBER 388 - TOTAL Q VS DIVERTED Q IN CFS
                           .0       .0     200.0     1.0     205.0      5.0     274.0     73.0     431.0   229.0     726.0   523.0
                      5000.0  4795.0
  388        1907          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1907        1320          0         4     CHANNEL         4.0      2175.     .0064      3.0   3.0       .025        2.00         0
                                             OVERFLOW    300.0      2175.     .0064     80.0  80.0       .025       15.00
 1320         320          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
  320        1909          0         4     CHANNEL         6.0      1412.     .0087      3.0   3.0       .035        2.00         0
                                             OVERFLOW    700.0      1412.     .0087    100.0 100.0       .035       10.00
 1909         322          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1321         321          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
  321        1337          0         1     CHANNEL        10.0      1092.     .0080     50.0  50.0       .045       15.00         0
 1337        1338          3         3                      .0         1.     .0010       .0    .0       .001       10.00      1363
                    DIVERSION TO GUTTER NUMBER1363 - TOTAL Q VS DIVERTED Q IN CFS
                           .0       .0      10.0      .1    3500.0   1910.4
 1338        1361          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1361        1320          0         5     PIPE            1.5       823.     .0100       .0    .0       .025        1.50         0
                                             OVERFLOW     50.0       823.     .0100     20.0  20.0       .045       15.00
  361        1364          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1363        1364          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1364        1365          0         5     PIPE            1.5      1547.     .0078       .0    .0       .025        1.50         0
                                             OVERFLOW     10.0      1547.     .0078     50.0  50.0       .045       20.00
 1365        1944          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
  370        1944          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1944        1945          0         5     PIPE            4.5      1283.     .0109       .0    .0       .025        4.50         0
                                             OVERFLOW     10.0      1283.     .0109     50.0  50.0       .035       20.00
 1945        1373          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1373        1375          3         3                      .0         1.     .0010       .0    .0       .001       10.00      1377
                    DIVERSION TO GUTTER NUMBER1377 - TOTAL Q VS DIVERTED Q IN CFS
                           .0       .0     195.7      .1    5200.0   3985.2
 1377        1372          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1375        1376          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1376        1946          0         4     CHANNEL         8.0       750.     .0100      3.0   3.0       .045        6.00         0
                                             OVERFLOW     50.0       750.     .0100     20.0  20.0       .050        5.00
  322        1943          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1943        1946          0         4     CHANNEL        20.0      1443.     .0083      4.0   4.0       .045        6.00         0
                                             OVERFLOW    400.0      1443.     .0083     50.0  50.0       .060       10.00
 1946         319          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
  319         271          0         4     CHANNEL        30.0      4190.     .0086      4.0   4.0       .065        7.00         0
                                             OVERFLOW    500.0      4190.     .0086     50.0  50.0       .060       10.00
  231         271          0         4     CHANNEL       130.0      5118.     .0074      4.0   4.0       .055        8.00         0
                                             OVERFLOW    600.0      5118.     .0074     50.0  50.0       .050       20.00
  271         270          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
  270         399          0         4     CHANNEL        70.0      2605.     .0074      3.0   3.0       .055        8.00         0
                                             OVERFLOW    700.0      2605.     .0074    100.0 100.0       .040       20.00
  399        1599          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1599        1947          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
 1947           0          0         3                      .0         1.     .0010       .0    .0       .001       10.00         0
0TOTAL NUMBER OF GUTTERS/PIPES, 610
1


  sbc_ltd.swi
  500-year model


  ARRANGEMENT OF SUBCATCHMENTS AND GUTTERS/PIPES

        GUTTER     TRIBUTARY GUTTER/PIPE                                                 TRIBUTARY SUBAREA                                D.A.(AC)

           1          2    5    0    0    0    0    0    0    0    0                    1    0    0    0    0    0    0    0    0    0 64741.0

           2          3    4    0    0    0    0    0    0    0    0                    2    0    0    0    0    0    0    0    0    0  2408.0

           3          0    0    0    0    0    0    0    0    0    0                    3    0    0    0    0    0    0    0    0    0   929.0

           4          0    0    0    0    0    0    0    0    0    0                    4    0    0    0    0    0    0    0    0    0   960.0

           5          7    6   13    0    0    0    0    0    0    0                    5    0    0    0    0    0    0    0    0    0 61766.0

           6        397    0    0    0    0    0    0    0    0    0                    6    0    0    0    0    0    0    0    0    0 59943.0

           7          9   10    0    0    0    0    0    0    0    0                    7    0    0    0    0    0    0    0    0    0   986.0

           8         15   22    0    0    0    0    0    0    0    0                    8    0    0    0    0    0    0    0    0    0 59647.0

           9          0    0    0    0    0    0    0    0    0    0                    9    0    0    0    0    0    0    0    0    0   411.0

          10          0    0    0    0    0    0    0    0    0    0                   10    0    0    0    0    0    0    0    0    0   202.0

          11          0    0    0    0    0    0    0    0    0    0                   11    0    0    0    0    0    0    0    0    0   113.0

          12          0    0    0    0    0    0    0    0    0    0                   12    0    0    0    0    0    0    0    0    0   159.0

          13         11   12    0    0    0    0    0    0    0    0                   13    0    0    0    0    0    0    0    0    0   501.0

          14          0    0    0    0    0    0    0    0    0    0                   14    0    0    0    0    0    0    0    0    0   132.0

          15         14   16    0    0    0    0    0    0    0    0                   15    0    0    0    0    0    0    0    0    0 53636.0

          16         40   17    0    0    0    0    0    0    0    0                   16    0    0    0    0    0    0    0    0    0 53468.0

          17         18   21    0    0    0    0    0    0    0    0                   17    0    0    0    0    0    0    0    0    0  1706.0

          18         20    0    0    0    0    0    0    0    0    0                   18    0    0    0    0    0    0    0    0    0  1171.0
```

```
 20       0    0    0    0    0    0    0    0    0    0            19    0    0    0    0    0    0    0    0    0    606.0
 21       0    0    0    0    0    0    0    0    0    0            20    0    0    0    0    0    0    0    0    0    379.0
 22      23   24    0    0    0    0    0    0    0    0            21    0    0    0    0    0    0    0    0    0   4784.0
 23      37   34   31    0    0    0    0    0    0    0            22    0    0    0    0    0    0    0    0    0   2671.0
 24      25   26    0    0    0    0    0    0    0    0            23    0    0    0    0    0    0    0    0    0   1666.0
 25       0    0    0    0    0    0    0    0    0    0            24    0    0    0    0    0    0    0    0    0    363.0
 26      27   28    0    0    0    0    0    0    0    0            25    0    0    0    0    0    0    0    0    0   1199.0
 27       0    0    0    0    0    0    0    0    0    0            26    0    0    0    0    0    0    0    0    0    107.0
 28      29   30    0    0    0    0    0    0    0    0            27    0    0    0    0    0    0    0    0    0    998.0
 29       0    0    0    0    0    0    0    0    0    0            28    0    0    0    0    0    0    0    0    0    152.0
 30       0    0    0    0    0    0    0    0    0    0            29    0    0    0    0    0    0    0    0    0    546.0
 31      32   33    0    0    0    0    0    0    0    0            30    0    0    0    0    0    0    0    0    0    508.0
 32       0    0    0    0    0    0    0    0    0    0            31    0    0    0    0    0    0    0    0    0    144.0
 33       0    0    0    0    0    0    0    0    0    0            32    0    0    0    0    0    0    0    0    0    257.0
 34      35   36    0    0    0    0    0    0    0    0            33    0    0    0    0    0    0    0    0    0    844.0
 35       0    0    0    0    0    0    0    0    0    0            34    0    0    0    0    0    0    0    0    0    148.0
 36       0    0    0    0    0    0    0    0    0    0            35    0    0    0    0    0    0    0    0    0    251.0
 37      38   39    0    0    0    0    0    0    0    0            36    0    0    0    0    0    0    0    0    0   1124.0
 38       0    0    0    0    0    0    0    0    0    0            37    0    0    0    0    0    0    0    0    0    368.0
 39       0    0    0    0    0    0    0    0    0    0            38    0    0    0    0    0    0    0    0    0    290.0
 40      41   42    0    0    0    0    0    0    0    0            39    0    0    0    0    0    0    0    0    0  51645.0
 41       0    0    0    0    0    0    0    0    0    0            40    0    0    0    0    0    0    0    0    0    205.0
 42      46   62   68    0    0    0    0    0    0    0            41    0    0    0    0    0    0    0    0    0  51084.0
 44    1512 1501    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0  30179.0
 46      59   60    0    0    0    0    0    0    0    0            42    0    0    0    0    0    0    0    0    0  47929.0
 48      50   49    0    0    0    0    0    0    0    0            69    0    0    0    0    0    0    0    0    0  72077.0
 49       0    0    0    0    0    0    0    0    0    0            72    0    0    0    0    0    0    0    0    0    220.0
 50      51   52   56    0    0    0    0    0    0    0            71    0    0    0    0    0    0    0    0    0  71466.0
 51       0    0    0    0    0    0    0    0    0    0            82    0    0    0    0    0    0    0    0    0    362.0
 52     244  245   53    0    0    0    0    0    0    0            73    0    0    0    0    0    0    0    0    0  69055.0
 53      54   55    0    0    0    0    0    0    0    0            75    0    0    0    0    0    0    0    0    0    536.0
 54       0    0    0    0    0    0    0    0    0    0            76    0    0    0    0    0    0    0    0    0    213.0
 55       0    0    0    0    0    0    0    0    0    0            77    0    0    0    0    0    0    0    0    0    297.0
 56      57   58    0    0    0    0    0    0    0    0            78   79    0    0    0    0    0    0    0    0   1842.0
 57       0    0    0    0    0    0    0    0    0    0            81    0    0    0    0    0    0    0    0    0    776.0
 58       0    0    0    0    0    0    0    0    0    0            80    0    0    0    0    0    0    0    0    0    220.0
 59      74   71    0    0    0    0    0    0    0    0            43    0    0    0    0    0    0    0    0    0  47507.0
 60       0    0    0    0    0    0    0    0    0    0            44    0    0    0    0    0    0    0    0    0    225.0
 61      63   64    0    0    0    0    0    0    0    0            45    0    0    0    0    0    0    0    0    0   1044.0
 62      61   65    0    0    0    0    0    0    0    0            46    0    0    0    0    0    0    0    0    0   2039.0
 63       0    0    0    0    0    0    0    0    0    0            47    0    0    0    0    0    0    0    0    0    234.0
 64       0    0    0    0    0    0    0    0    0    0            48    0    0    0    0    0    0    0    0    0    258.0
 65      66   67    0    0    0    0    0    0    0    0            49    0    0    0    0    0    0    0    0    0    956.0
 66       0    0    0    0    0    0    0    0    0    0            50    0    0    0    0    0    0    0    0    0    108.0
 67       0    0    0    0    0    0    0    0    0    0            51    0    0    0    0    0    0    0    0    0    636.0
 68      69   70    0    0    0    0    0    0    0    0            52    0    0    0    0    0    0    0    0    0    523.0
 69       0    0    0    0    0    0    0    0    0    0            53    0    0    0    0    0    0    0    0    0    197.0
 70       0    0    0    0    0    0    0    0    0    0            54    0    0    0    0    0    0    0    0    0    246.0
 71      72   73    0    0    0    0    0    0    0    0            55    0    0    0    0    0    0    0    0    0   1094.0
 72       0    0    0    0    0    0    0    0    0    0            56    0    0    0    0    0    0    0    0    0    197.0
 73       0    0    0    0    0    0    0    0    0    0            57    0    0    0    0    0    0    0    0    0    636.0
```

```
   74      77   76   94    0    0    0    0    0    0    0          58    0    0    0    0    0    0    0    0    0 46117.0
   75      79   78    0    0    0    0    0    0    0    0          61    0    0    0    0    0    0    0    0    0  3945.0
   76       0    0    0    0    0    0    0    0    0    0          63    0    0    0    0    0    0    0    0    0   379.0
   77      75   88    0    0    0    0    0    0    0    0          65    0    0    0    0    0    0    0    0    0  4793.0
   78       0    0    0    0    0    0    0    0    0    0          66    0    0    0    0    0    0    0    0    0   256.0
   79      80  121    0    0    0    0    0    0    0    0          70    0    0    0    0    0    0    0    0    0  3627.0
   80      82   81    0    0    0    0    0    0    0    0          83    0    0    0    0    0    0    0    0    0  2668.0
   81      87    0    0    0    0    0    0    0    0    0          84    0    0    0    0    0    0    0    0    0   958.0
   82      84   83    0    0    0    0    0    0    0    0          85    0    0    0    0    0    0    0    0    0   848.0
   83       0    0    0    0    0    0    0    0    0    0          86    0    0    0    0    0    0    0    0    0   197.0
   84      85   86    0    0    0    0    0    0    0    0          87    0    0    0    0    0    0    0    0    0   555.0
   85       0    0    0    0    0    0    0    0    0    0          88    0    0    0    0    0    0    0    0    0   118.0
   86       0    0    0    0    0    0    0    0    0    0          89    0    0    0    0    0    0    0    0    0   331.0
   87       0    0    0    0    0    0    0    0    0    0          90    0    0    0    0    0    0    0    0    0   655.0
   88      89   93    0    0    0    0    0    0    0    0          91    0    0    0    0    0    0    0    0    0   782.0
   89       0    0    0    0    0    0    0    0    0    0         228    0    0    0    0    0    0    0    0    0   319.0
   93       0    0    0    0    0    0    0    0    0    0         229    0    0    0    0    0    0    0    0    0   111.0
   94      95   97    0    0    0    0    0    0    0    0          92    0    0    0    0    0    0    0    0    0 40534.0
   95      96  116    0    0    0    0    0    0    0    0         230    0    0    0    0    0    0    0    0    0 34430.0
   96     129  122    0    0    0    0    0    0    0    0          93    0    0    0    0    0    0    0    0    0 33528.0
   97      99   98    0    0    0    0    0    0    0    0          94    0    0    0    0    0    0    0    0    0  5629.0
   98       0    0    0    0    0    0    0    0    0    0          95    0    0    0    0    0    0    0    0    0   309.0
   99     101  100    0    0    0    0    0    0    0    0          96    0    0    0    0    0    0    0    0    0  4848.0
  100       0    0    0    0    0    0    0    0    0    0          97    0    0    0    0    0    0    0    0    0   458.0
  101     102  107    0    0    0    0    0    0    0    0          98    0    0    0    0    0    0    0    0    0  4335.0
  102     106  103    0    0    0    0    0    0    0    0          99    0    0    0    0    0    0    0    0    0  2382.0
  103     104  105    0    0    0    0    0    0    0    0         100    0    0    0    0    0    0    0    0    0  1795.0
  104     119  117    0    0    0    0    0    0    0    0         101    0    0    0    0    0    0    0    0    0  1302.0
  105       0    0    0    0    0    0    0    0    0    0         102    0    0    0    0    0    0    0    0    0   343.0
  106       0    0    0    0    0    0    0    0    0    0         103    0    0    0    0    0    0    0    0    0   273.0
  107     108  109    0    0    0    0    0    0    0    0         104    0    0    0    0    0    0    0    0    0  1871.0
  108       0    0    0    0    0    0    0    0    0    0         105    0    0    0    0    0    0    0    0    0   202.0
  109     110  111    0    0    0    0    0    0    0    0         106    0    0    0    0    0    0    0    0    0  1563.0
  110     112  113    0    0    0    0    0    0    0    0         107    0    0    0    0    0    0    0    0    0  1148.0
  111       0    0    0    0    0    0    0    0    0    0         108    0    0    0    0    0    0    0    0    0   199.0
  112     114  115    0    0    0    0    0    0    0    0         109    0    0    0    0    0    0    0    0    0   540.0
  113       0    0    0    0    0    0    0    0    0    0         110    0    0    0    0    0    0    0    0    0   209.0
  114       0    0    0    0    0    0    0    0    0    0         111    0    0    0    0    0    0    0    0    0   230.0
  115       0    0    0    0    0    0    0    0    0    0         112    0    0    0    0    0    0    0    0    0   102.0
  116       0    0    0    0    0    0    0    0    0    0         113    0    0    0    0    0    0    0    0    0   702.0
  117       0    0    0    0    0    0    0    0    0    0         114    0    0    0    0    0    0    0    0    0   390.0
  118       0    0    0    0    0    0    0    0    0    0         115    0    0    0    0    0    0    0    0    0   453.0
  119     120  118    0    0    0    0    0    0    0    0         116    0    0    0    0    0    0    0    0    0   707.0
  120       0    0    0    0    0    0    0    0    0    0         117    0    0    0    0    0    0    0    0    0   220.0
  121       0    0    0    0    0    0    0    0    0    0          74    0    0    0    0    0    0    0    0    0   326.0
  122     124  123    0    0    0    0    0    0    0    0         118    0    0    0    0    0    0    0    0    0  2595.0
  123     127  128    0    0    0    0    0    0    0    0         119    0    0    0    0    0    0    0    0    0  1409.0
  124     125  126    0    0    0    0    0    0    0    0         120    0    0    0    0    0    0    0    0    0   705.0
  125       0    0    0    0    0    0    0    0    0    0         124    0    0    0    0    0    0    0    0    0   220.0
  126       0    0    0    0    0    0    0    0    0    0         125    0    0    0    0    0    0    0    0    0    88.0
  127       0    0    0    0    0    0    0    0    0    0         126    0    0    0    0    0    0    0    0    0   548.0
```

```
128     0    0    0    0    0    0    0    0    0    0      127    0    0    0    0    0    0    0    0    0    472.0
129   137  130    0    0    0    0    0    0    0    0      128    0    0    0    0    0    0    0    0    0  30354.0
130   133  131  132    0    0    0    0    0    0    0      129    0    0    0    0    0    0    0    0    0   2081.0
131     0    0    0    0    0    0    0    0    0    0      130    0    0    0    0    0    0    0    0    0    290.0
132     0    0    0    0    0    0    0    0    0    0      131    0    0    0    0    0    0    0    0    0    213.0
133   134    0    0    0    0    0    0    0    0    0      132    0    0    0    0    0    0    0    0    0   1468.0
134   135  136    0    0    0    0    0    0    0    0      133    0    0    0    0    0    0    0    0    0    972.0
135     0    0    0    0    0    0    0    0    0    0      134    0    0    0    0    0    0    0    0    0    160.0
136     0    0    0    0    0    0    0    0    0    0      135    0    0    0    0    0    0    0    0    0    282.0
137   138  139    0    0    0    0    0    0    0    0      136    0    0    0    0    0    0    0    0    0  28122.0
138     0    0    0    0    0    0    0    0    0    0      137    0    0    0    0    0    0    0    0    0    383.0
139   149  140    0    0    0    0    0    0    0    0      138    0    0    0    0    0    0    0    0    0  27597.0
140   142  141    0    0    0    0    0    0    0    0      139    0    0    0    0    0    0    0    0    0   2013.0
141     0    0    0    0    0    0    0    0    0    0      140    0    0    0    0    0    0    0    0    0    132.0
142   146  143    0    0    0    0    0    0    0    0      141    0    0    0    0    0    0    0    0    0   1697.0
143   144  145    0    0    0    0    0    0    0    0      142    0    0    0    0    0    0    0    0    0    540.0
144     0    0    0    0    0    0    0    0    0    0      143    0    0    0    0    0    0    0    0    0    274.0
145     0    0    0    0    0    0    0    0    0    0      144    0    0    0    0    0    0    0    0    0     79.0
146   147  148    0    0    0    0    0    0    0    0      145    0    0    0    0    0    0    0    0    0   1054.0
147     0    0    0    0    0    0    0    0    0    0      146    0    0    0    0    0    0    0    0    0    283.0
148     0    0    0    0    0    0    0    0    0    0      147    0    0    0    0    0    0    0    0    0    453.0
149   152  150  151    0    0    0    0    0    0    0      148    0    0    0    0    0    0    0    0    0  25514.0
150     0    0    0    0    0    0    0    0    0    0      149    0    0    0    0    0    0    0    0    0     58.0
151     0    0    0    0    0    0    0    0    0    0      150    0    0    0    0    0    0    0    0    0    189.0
152   153  154    0    0    0    0    0    0    0    0      151    0    0    0    0    0    0    0    0    0  25053.0
153     0    0    0    0    0    0    0    0    0    0      152    0    0    0    0    0    0    0    0    0    249.0
154   156  155    0    0    0    0    0    0    0    0      153    0    0    0    0    0    0    0    0    0  24303.0
155     0    0    0    0    0    0    0    0    0    0      154    0    0    0    0    0    0    0    0    0    161.0
156   157  158    0    0    0    0    0    0    0    0      155    0    0    0    0    0    0    0    0    0  23893.0
157   172  163  170  171    0    0    0    0    0    0      156    0    0    0    0    0    0    0    0    0  21505.0
158   160  159    0    0    0    0    0    0    0    0      157    0    0    0    0    0    0    0    0    0   1865.0
159     0    0    0    0    0    0    0    0    0    0      158    0    0    0    0    0    0    0    0    0    476.0
160   161  162    0    0    0    0    0    0    0    0      159    0    0    0    0    0    0    0    0    0   1045.0
161     0    0    0    0    0    0    0    0    0    0      160    0    0    0    0    0    0    0    0    0    341.0
162     0    0    0    0    0    0    0    0    0    0      161    0    0    0    0    0    0    0    0    0    362.0
163   166  164    0    0    0    0    0    0    0    0      162    0    0    0    0    0    0    0    0    0   1286.0
164     0    0    0    0    0    0    0    0    0    0      163    0    0    0    0    0    0    0    0    0     76.0
165   168  169    0    0    0    0    0    0    0    0      164    0    0    0    0    0    0    0    0    0    784.0
166   165  167    0    0    0    0    0    0    0    0      165    0    0    0    0    0    0    0    0    0   1098.0
167     0    0    0    0    0    0    0    0    0    0      166    0    0    0    0    0    0    0    0    0    215.0
168     0    0    0    0    0    0    0    0    0    0      167    0    0    0    0    0    0    0    0    0    259.0
169     0    0    0    0    0    0    0    0    0    0      168    0    0    0    0    0    0    0    0    0    175.0
170     0    0    0    0    0    0    0    0    0    0      169    0    0    0    0    0    0    0    0    0    332.0
171     0    0    0    0    0    0    0    0    0    0      170    0    0    0    0    0    0    0    0    0    139.0
172   187  173    0    0    0    0    0    0    0    0      171    0    0    0    0    0    0    0    0    0  19645.0
173   174  175    0    0    0    0    0    0    0    0      172    0    0    0    0    0    0    0    0    0   5003.0
174     0    0    0    0    0    0    0    0    0    0      173    0    0    0    0    0    0    0    0    0    188.0
175   177  176    0    0    0    0    0    0    0    0      174    0    0    0    0    0    0    0    0    0   4585.0
176   180  179    0    0    0    0    0    0    0    0      175    0    0    0    0    0    0    0    0    0   3882.0
177   178    0    0    0    0    0    0    0    0    0      176    0    0    0    0    0    0    0    0    0    625.0
178     0    0    0    0    0    0    0    0    0    0      177    0    0    0    0    0    0    0    0    0    392.0
```

```
 179      0    0    0    0    0    0    0    0    0    0      178    0    0    0    0    0    0    0    0    0   211.0
 180    181  182    0    0    0    0    0    0    0    0      179    0    0    0    0    0    0    0    0    0  2955.0
 181      0    0    0    0    0    0    0    0    0    0      180    0    0    0    0    0    0    0    0    0   438.0
 182    183  184    0    0    0    0    0    0    0    0      181    0    0    0    0    0    0    0    0    0  2016.0
 183      0    0    0    0    0    0    0    0    0    0      182    0    0    0    0    0    0    0    0    0   599.0
 184    186  185    0    0    0    0    0    0    0    0      183    0    0    0    0    0    0    0    0    0   910.0
 185      0    0    0    0    0    0    0    0    0    0      184    0    0    0    0    0    0    0    0    0   232.0
 186      0    0    0    0    0    0    0    0    0    0      185    0    0    0    0    0    0    0    0    0   461.0
 187    192  193    0    0    0    0    0    0    0    0      186    0    0    0    0    0    0    0    0    0 14569.0
 192    194  205    0    0    0    0    0    0    0    0      187    0    0    0    0    0    0    0    0    0 13278.0
 193      0    0    0    0    0    0    0    0    0    0      188    0    0    0    0    0    0    0    0    0   273.0
 194    198  199  196  195    0    0    0    0    0    0      189    0    0    0    0    0    0    0    0    0  5663.0
 195      0    0    0    0    0    0    0    0    0    0      190    0    0    0    0    0    0    0    0    0   251.0
 196      0    0    0    0    0    0    0    0    0    0      195    0    0    0    0    0    0    0    0    0   387.0
 198    201  200  202    0    0    0    0    0    0    0      196    0    0    0    0    0    0    0    0    0  3544.0
 199      0    0    0    0    0    0    0    0    0    0      197    0    0    0    0    0    0    0    0    0   634.0
 200      0    0    0    0    0    0    0    0    0    0      198    0    0    0    0    0    0    0    0    0   542.0
 201    204  203    0    0    0    0    0    0    0    0      199    0    0    0    0    0    0    0    0    0  1955.0
 202      0    0    0    0    0    0    0    0    0    0      200    0    0    0    0    0    0    0    0    0   250.0
 203      0    0    0    0    0    0    0    0    0    0      203    0    0    0    0    0    0    0    0    0   258.0
 204      0    0    0    0    0    0    0    0    0    0      204    0    0    0    0    0    0    0    0    0   854.0
 205    207  206    0    0    0    0    0    0    0    0      205    0    0    0    0    0    0    0    0    0  7500.0
 206      0    0    0    0    0    0    0    0    0    0      206    0    0    0    0    0    0    0    0    0   250.0
 207    211  208    0    0    0    0    0    0    0    0      207    0    0    0    0    0    0    0    0    0  6855.0
 208      0    0    0    0    0    0    0    0    0    0      208    0    0    0    0    0    0    0    0    0   275.0
 211    212  215    0    0    0    0    0    0    0    0      209    0    0    0    0    0    0    0    0    0  5808.0
 212    214  213    0    0    0    0    0    0    0    0      210    0    0    0    0    0    0    0    0    0  1581.0
 213      0    0    0    0    0    0    0    0    0    0      211    0    0    0    0    0    0    0    0    0   511.0
 214      0    0    0    0    0    0    0    0    0    0      212    0    0    0    0    0    0    0    0    0   482.0
 215    219  216  217    0    0    0    0    0    0    0      213    0    0    0    0    0    0    0    0    0  3943.0
 216      0    0    0    0    0    0    0    0    0    0      214    0    0    0    0    0    0    0    0    0   505.0
 217      0    0    0    0    0    0    0    0    0    0      215    0    0    0    0    0    0    0    0    0   245.0
 218    222  221    0    0    0    0    0    0    0    0      219    0    0    0    0    0    0    0    0    0  1711.0
 219    220  218    0    0    0    0    0    0    0    0      220    0    0    0    0    0    0    0    0    0  2654.0
 220      0    0    0    0    0    0    0    0    0    0      221    0    0    0    0    0    0    0    0    0   506.0
 221      0    0    0    0    0    0    0    0    0    0      222    0    0    0    0    0    0    0    0    0   250.0
 222    224  223    0    0    0    0    0    0    0    0      223    0    0    0    0    0    0    0    0    0  1417.0
 223      0    0    0    0    0    0    0    0    0    0      224    0    0    0    0    0    0    0    0    0   309.0
 224    226  225    0    0    0    0    0    0    0    0      225    0    0    0    0    0    0    0    0    0   926.0
 225      0    0    0    0    0    0    0    0    0    0      226    0    0    0    0    0    0    0    0    0   152.0
 226      0    0    0    0    0    0    0    0    0    0      227    0    0    0    0    0    0    0    0    0   286.0
 231    252    0    0    0    0    0    0    0    0    0      231    0    0    0    0    0    0    0    0    0 86054.0
 232    234  233    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 85664.0
 233    251    0    0    0    0    0    0    0    0    0      233    0    0    0    0    0    0    0    0    0 85477.0
 234    239    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   187.0
 235      0    0    0    0    0    0    0    0    0    0      235    0    0    0    0    0    0    0    0    0   187.0
 236    232    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 85664.0
 237    238    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 85196.0
 238   1927  240    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0 85196.0
 239    235    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   187.0
 240    241    0    0    0    0    0    0    0    0    0      240    0    0    0    0    0    0    0    0    0 84397.0
```

```
  241    242    0    0    0    0    0    0    0    0    0      241    0    0    0    0    0    0    0    0    0  84351.0
  242    377  289  243    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  84008.0
  243   1427    0    0    0    0    0    0    0    0    0      243    0    0    0    0    0    0    0    0    0  80261.0
  244      0    0    0    0    0    0    0    0    0    0      253    0    0    0    0    0    0    0    0    0    848.0
  245      1  246    0    0    0    0    0    0    0    0      254    0    0    0    0    0    0    0    0    0  67230.0
  246    247  250    0    0    0    0    0    0    0    0      255    0    0    0    0    0    0    0    0    0   2389.0
  247      0    0    0    0    0    0    0    0    0    0      256    0    0    0    0    0    0    0    0    0    808.0
  248      0    0    0    0    0    0    0    0    0    0      257    0    0    0    0    0    0    0    0    0    645.0
  249      0    0    0    0    0    0    0    0    0    0      258    0    0    0    0    0    0    0    0    0    377.0
  250    248  249    0    0    0    0    0    0    0    0      259    0    0    0    0    0    0    0    0    0   1131.0
  251    237    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  35196.0
  252    236    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  35664.0
  261     44    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  30179.0
  262   1935    0    0    0    0    0    0    0    0    0      262    0    0    0    0    0    0    0    0    0   2758.0
  263    262    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2758.0
  264   1905    0    0    0    0    0    0    0    0    0      264    0    0    0    0    0    0    0    0    0   2784.0
  265    264    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2784.0
  266      0    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
  267    293 1267    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   3624.0
  268    267    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   3624.0
  269    265    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   2784.0
  270    271    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  86842.0
  271    319  231    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0  86842.0
  280    294    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   3624.0
  289   1924    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   3653.0
  290   1290    0    0    0    0    0    0    0    0    0      290    0    0    0    0    0    0    0    0    0   3653.0
  291   1291    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   3624.0
  292   1923    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
  293   1293    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   3624.0
  294   1294  304 1920    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0   3624.0
  295   1295    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
  296   1296    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
  297    298    0    0    0    0    0    0    0    0    0      297    0    0    0    0    0    0    0    0    0    587.0
  298    303    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    249.0
  299      0    0    0    0    0    0    0    0    0    0      299    0    0    0    0    0    0    0    0    0     72.0
  300    301    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    177.0
  301      0    0    0    0    0    0    0    0    0    0      301    0    0    0    0    0    0    0    0    0    177.0
  303    299 1922    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    249.0
  304      0    0    0    0    0    0    0    0    0    0      304    0    0    0    0    0    0    0    0    0    150.0
  308    396    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      7.0
  310   1409 1310    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0       .0
  311    371  312    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0    247.0
  312   1940    0    0    0    0    0    0    0    0    0      312    0    0    0    0    0    0    0    0    0    100.0
  313   1939    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      7.0
  314    308    0    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0      7.0
  315    310    0    0    0    0    0    0    0    0    0      315    0    0    0    0    0    0    0    0    0     28.0
  316      0    0    0    0    0    0    0    0    0    0      316    0    0    0    0    0    0    0    0    0     43.0
  317    315  316    0    0    0    0    0    0    0    0        0    0    0    0    0    0    0    0    0    0     71.0
  318    338    0    0    0    0    0    0    0    0    0      318    0    0    0    0    0    0    0    0    0    230.0
  319   1946    0    0    0    0    0    0    0    0    0      319    0    0    0    0    0    0    0    0    0    788.0
  320   1320    0    0    0    0    0    0    0    0    0      320    0    0    0    0    0    0    0    0    0    454.0
```

```
  321   1321    0    0    0    0    0    0    0    0    0           321    0    0    0    0    0    0    0    0    0    34.0
  322   1909    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   454.0
  323   1323    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0     9.0
  324    325    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   569.0
  325   1325  326    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   569.0
  326    327  317    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   569.0
  327   1311    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   498.0
  328    337 1329  329    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   498.0
  329    330    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   417.0
  330   1306 1303    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   417.0
  331   1331 1407    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0      .0
  332    333  334    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0    10.0
  333   1333    0    0    0    0    0    0    0    0    0           333    0    0    0    0    0    0    0    0    0     5.0
  334   1334    0    0    0    0    0    0    0    0    0           334    0    0    0    0    0    0    0    0    0     5.0
  335   1335    0    0    0    0    0    0    0    0    0           335    0    0    0    0    0    0    0    0    0   417.0
  336   1336    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0      .0
  337    331    0    0    0    0    0    0    0    0    0           337    0    0    0    0    0    0    0    0    0    50.0
  338      0    0    0    0    0    0    0    0    0    0           338    0    0    0    0    0    0    0    0    0    73.0
  339   1822    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0      .0
  340   1340    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0      .0
  341   1341    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0      .0
  342   1342    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   381.0
  343   1343    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   381.0
  344    366    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0    81.0
  345    346    0    0    0    0    0    0    0    0    0           345    0    0    0    0    0    0    0    0    0   149.0
  346      0    0    0    0    0    0    0    0    0    0           346    0    0    0    0    0    0    0    0    0    71.0
  347   1915    0    0    0    0    0    0    0    0    0           347    0    0    0    0    0    0    0    0    0   212.0
  348   1348    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0      .0
  349      0    0    0    0    0    0    0    0    0    0           349    0    0    0    0    0    0    0    0    0    13.0
  350      0    0    0    0    0    0    0    0    0    0           350    0    0    0    0    0    0    0    0    0    51.0
  351   1814    0    0    0    0    0    0    0    0    0           351    0    0    0    0    0    0    0    0    0   100.0
  352   1919    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0    41.0
  353      0    0    0    0    0    0    0    0    0    0           353    0    0    0    0    0    0    0    0    0    41.0
  354   1817    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0     6.0
  355      0    0    0    0    0    0    0    0    0    0           355    0    0    0    0    0    0    0    0    0     7.0
  356    359    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   381.0
  357   1357    0    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   259.0
  358    311    0    0    0    0    0    0    0    0    0           358    0    0    0    0    0    0    0    0    0   259.0
  359    345  347  349  355    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0   381.0
  360   1360  292    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0      .0
  361      0    0    0    0    0    0    0    0    0    0           361    0    0    0    0    0    0    0    0    0    30.0
  362   1362  363    0    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0     7.0
  363      0    0    0    0    0    0    0    0    0    0           363    0    0    0    0    0    0    0    0    0     7.0
  366   1366    0    0    0    0    0    0    0    0    0           366    0    0    0    0    0    0    0    0    0    81.0
  367   1367    0    0    0    0    0    0    0    0    0           367    0    0    0    0    0    0    0    0    0    23.0
  368      0    0    0    0    0    0    0    0    0    0           368    0    0    0    0    0    0    0    0    0    99.0
  369      0    0    0    0    0    0    0    0    0    0           369    0    0    0    0    0    0    0    0    0    17.0
  370      0    0    0    0    0    0    0    0    0    0           370    0    0    0    0    0    0    0    0    0    41.0
  371    372    0    0    0    0    0    0    0    0    0           371    0    0    0    0    0    0    0    0    0   147.0
  372    374  373  367    0    0    0    0    0    0    0             0    0    0    0    0    0    0    0    0    0    64.0
  373      0    0    0    0    0    0    0    0    0    0           373    0    0    0    0    0    0    0    0    0    38.0
```

```
   374    1374    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      3.0
   375     376    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      3.0
   376     266    0    0    0    0    0    0    0    0    0          376    0    0    0    0    0    0    0    0    0      3.0
   377    1925    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     94.0
   378    1378    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     94.0
   379     380    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     94.0
   380    1821    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     94.0
   381     382    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     77.0
   382    1381    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     77.0
   383    1820    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     77.0
   384       0    0    0    0    0    0    0    0    0    0          384    0    0    0    0    0    0    0    0    0     77.0
   385       0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
   386    1386    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
   387    1387    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    259.0
   388       0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
   389       0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
   390    1912    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    799.0
   391     392    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    569.0
   392    1941 1392    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    569.0
   393     358    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    259.0
   394     395    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
   395     386    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
   396    1396    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      7.0
   397       8    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0  59647.0
   398     362    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      7.0
   399     270    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0  36842.0
  1238     390    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    799.0
  1262       0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
  1267       0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
  1289       0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
  1290     291    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   3624.0
  1291     268    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   3624.0
  1293     280    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   3624.0
  1294     269    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   2784.0
  1295       0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
  1296     295    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
  1301     335    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    417.0
  1302    1301    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    417.0
  1303    1302    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    417.0
  1304       0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
  1305    1307 1304    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     10.0
  1306       0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
  1307    1308    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     10.0
  1308     332    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     10.0
  1309     328    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    498.0
  1310     336    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
  1311    1309    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    498.0
  1312       0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
  1313     339    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0       .0
  1320    1908 1907 1361    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    293.0
  1321     323    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      9.0
```

```
1323      1402    0    0    0    0    0    0    0    0    0         1323    0    0    0    0    0    0    0    0    0     9.0
1325         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1329         0    0    0    0    0    0    0    0    0    0          336    0    0    0    0    0    0    0    0    0    31.0
1330       368 1312    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    99.0
1331         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1332      1330    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    99.0
1333       340    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1334       341    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1335       342    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   381.0
1336         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1337       321    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    34.0
1338      1337    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    34.0
1339         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1340         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1341         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1342       343    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   381.0
1343       356    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   381.0
1348         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1357       393    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   259.0
1360         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1361      1338    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    34.0
1362         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1363         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1364       361 1363    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    30.0
1365      1370 1364    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   129.0
1366         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1367         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1368      1332    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    99.0
1369      1368    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    99.0
1370      1369    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    99.0
1371         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1372      1371 1377    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1373      1945    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   170.0
1374       375    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     3.0
1375      1373    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   170.0
1376      1375    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   170.0
1377         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1378      1406 1404    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    94.0
1381      1382 1405    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    77.0
1382       296    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1383         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1386      1937  385    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1387      1401    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   259.0
1392       324    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   569.0
1393         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1396       398    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0     7.0
1401       357    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0   259.0
1402         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1403         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1404         0    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0      .0
1405       383    0    0    0    0    0    0    0    0    0            0    0    0    0    0    0    0    0    0    0    77.0
```

```
1406      379    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     94.0
1407        0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1408      344    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     81.0
1409        0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1410        0    0    0    0    0    0    0    0    0    0      1410    0    0    0    0    0    0    0    0    0    195.0
1411     1410 1424    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  77101.0
1412     1411    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  77101.0
1413     1412    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  77101.0
1414        0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1415        0    0    0    0    0    0    0    0    0    0      1415    0    0    0    0    0    0    0    0    0    307.0
1416     1415 1553    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1203.0
1420        0    0    0    0    0    0    0    0    0    0      1420    0    0    0    0    0    0    0    0    0     59.0
1421     1420 1426 1441    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76906.0
1423     1421    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76906.0
1424     1423    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76906.0
1425        0    0    0    0    0    0    0    0    0    0      1425    0    0    0    0    0    0    0    0    0     68.0
1426     1438 1425    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    382.0
1427      261    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  80179.0
1428     1528    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1429     1428 1416    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1203.0
1430        0    0    0    0    0    0    0    0    0    0      1430    0    0    0    0    0    0    0    0    0     82.0
1431     1430    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     82.0
1435        0    0    0    0    0    0    0    0    0    0      1435    0    0    0    0    0    0    0    0    0    232.0
1436     1435    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    232.0
1438     1436 1431    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    314.0
1440        0    0    0    0    0    0    0    0    0    0      1440    0    0    0    0    0    0    0    0    0     66.0
1441     1453 1440    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76465.0
1442     1514    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2719.0
1445        0    0    0    0    0    0    0    0    0    0      1445    0    0    0    0    0    0    0    0    0    164.0
1446     1445    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    164.0
1450        0    0    0    0    0    0    0    0    0    0      1450    0    0    0    0    0    0    0    0    0    198.0
1451     1603 1450    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76235.0
1453     1446 1451    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  76399.0
1455        0    0    0    0    0    0    0    0    0    0      1455    0    0    0    0    0    0    0    0    0    542.0
1456     1455 1482    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1274.0
1457     1456    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1274.0
1460        0    0    0    0    0    0    0    0    0    0      1460    0    0    0    0    0    0    0    0    0    286.0
1461     1460    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    286.0
1465        0    0    0    0    0    0    0    0    0    0      1465    0    0    0    0    0    0    0    0    0     93.0
1467     1933 1932    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2351.0
1468     1467    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2351.0
1480     1938    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    732.0
1481     1480    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    732.0
1482     1481    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    732.0
1490        0    0    0    0    0    0    0    0    0    0      1490    0    0    0    0    0    0    0    0    0    698.0
1491     1490 1457    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1972.0
1500        0    0    0    0    0    0    0    0    0    0      1500    0    0    0    0    0    0    0    0    0    465.0
1501     1500    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    465.0
1505        0    0    0    0    0    0    0    0    0    0      1505    0    0    0    0    0    0    0    0    0    262.0
1506     1505 1800    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  79714.0
1507     1506 1508    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  79714.0
```

```
  1508    0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
  1509 1413    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  77101.0
  1510    0    0    0    0    0    0    0    0    0    0       1510    0    0    0    0    0    0    0    0    0     76.0
  1511 1522 1510    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2719.0
  1512 1507    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  79714.0
  1513 1511    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2719.0
  1514 1513    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2719.0
  1515    0    0    0    0    0    0    0    0    0    0       1515    0    0    0    0    0    0    0    0    0      8.0
  1517 1716 1515    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    123.0
  1520    0    0    0    0    0    0    0    0    0    0       1520    0    0    0    0    0    0    0    0    0     99.0
  1521 1520 1533    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2175.0
  1522 1517 1548    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2643.0
  1525    0    0    0    0    0    0    0    0    0    0       1525    0    0    0    0    0    0    0    0    0     53.0
  1526 1525 1429    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   1256.0
  1528    0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
  1530    0    0    0    0    0    0    0    0    0    0       1530    0    0    0    0    0    0    0    0    0    345.0
  1531 1530 1546    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    820.0
  1532 1526 1531    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2076.0
  1533 1537 1534    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2076.0
  1534 1414    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0       .0
  1537 1532    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2076.0
  1541    0    0    0    0    0    0    0    0    0    0       1540    0    0    0    0    0    0    0    0    0    345.0
  1542 1541    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    345.0
  1544 1542 1521    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2520.0
  1545    0    0    0    0    0    0    0    0    0    0       1545    0    0    0    0    0    0    0    0    0    253.0
  1546 1545 1576    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    475.0
  1548 1544    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   2520.0
  1550    0    0    0    0    0    0    0    0    0    0       1550    0    0    0    0    0    0    0    0    0    424.0
  1551 1550 1563    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    642.0
  1553 1551 1557    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    896.0
  1556    0    0    0    0    0    0    0    0    0    0       1555    0    0    0    0    0    0    0    0    0     83.0
  1557 1571 1556    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    254.0
  1560    0    0    0    0    0    0    0    0    0    0       1560    0    0    0    0    0    0    0    0    0    123.0
  1561 1560    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    123.0
  1563 1561 1566    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    218.0
  1565    0    0    0    0    0    0    0    0    0    0       1565    0    0    0    0    0    0    0    0    0     95.0
  1566 1565    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     95.0
  1570    0    0    0    0    0    0    0    0    0    0       1570    0    0    0    0    0    0    0    0    0    171.0
  1571 1570    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    171.0
  1575    0    0    0    0    0    0    0    0    0    0       1575    0    0    0    0    0    0    0    0    0    222.0
  1576 1575    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    222.0
  1599 1403 1305 1372  399    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  86852.0
  1600    0    0    0    0    0    0    0    0    0    0       1600    0    0    0    0    0    0    0    0    0     25.0
  1601 1928 1600    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  73681.0
  1603 1601 1929    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  76037.0
  1605    0    0    0    0    0    0    0    0    0    0       1605    0    0    0    0    0    0    0    0    0     81.0
  1606 1605 1666    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    471.0
  1610    0    0    0    0    0    0    0    0    0    0       1610    0    0    0    0    0    0    0    0    0    109.0
  1611 1628 1610    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  73185.0
  1615    0    0    0    0    0    0    0    0    0    0       1615    0    0    0    0    0    0    0    0    0    228.0
  1616 1615    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    228.0
```

```
1620       0    0    0    0    0    0    0    0    0    0      1620    0    0    0    0    0    0    0    0    0    324.0
1621    1653 1620    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1816.0
1623    1616 1621    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2044.0
1624    1623 1705    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2111.0
1625       0    0    0    0    0    0    0    0    0    0      1625    0    0    0    0    0    0    0    0    0    197.0
1626      48 1625 1636    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  72591.0
1628    1631 1626    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  73076.0
1630       0    0    0    0    0    0    0    0    0    0      1630    0    0    0    0    0    0    0    0    0    159.0
1631    1643 1630    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    485.0
1635       0    0    0    0    0    0    0    0    0    0      1635    0    0    0    0    0    0    0    0    0    317.0
1636    1635    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    317.0
1640       0    0    0    0    0    0    0    0    0    0      1640    0    0    0    0    0    0    0    0    0    200.0
1641    1640    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    200.0
1643    1646 1641    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    326.0
1645       0    0    0    0    0    0    0    0    0    0      1645    0    0    0    0    0    0    0    0    0    126.0
1646    1645    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    126.0
1650       0    0    0    0    0    0    0    0    0    0      1650    0    0    0    0    0    0    0    0    0    382.0
1651    1661 1650    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    934.0
1653    1651 1656    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   1492.0
1655       0    0    0    0    0    0    0    0    0    0      1655    0    0    0    0    0    0    0    0    0    558.0
1656    1655    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    558.0
1660       0    0    0    0    0    0    0    0    0    0      1660    0    0    0    0    0    0    0    0    0    552.0
1661    1660    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    552.0
1665       0    0    0    0    0    0    0    0    0    0      1665    0    0    0    0    0    0    0    0    0    390.0
1666    1665    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    390.0
1705       0    0    0    0    0    0    0    0    0    0      1705    0    0    0    0    0    0    0    0    0     67.0
1710       0    0    0    0    0    0    0    0    0    0      1710    0    0    0    0    0    0    0    0    0    245.0
1711    1710    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    245.0
1712    1711 1624    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2356.0
1715       0    0    0    0    0    0    0    0    0    0      1715    0    0    0    0    0    0    0    0    0    115.0
1716    1715    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    115.0
1800    1509 1468    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0  79452.0
1812     352    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     41.0
1813    1812    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     41.0
1814    1813    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     41.0
1815       0    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1816    1815    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1817    1818 1816    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      6.0
1818       0    0    0    0    0    0    0    0    0    0       354    0    0    0    0    0    0    0    0    0      6.0
1820     384 1383    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     77.0
1821     369 1926    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0     94.0
1822    1339  394    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1905     263    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0   2758.0
1906     389    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1907     388    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0       .0
1908     387    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    259.0
1909    1906  320    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    454.0
1910     313    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0      7.0
1911     391  318    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    799.0
1912    1911    0    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    799.0
1913     351  354    0    0    0    0    0    0    0    0         0    0    0    0    0    0    0    0    0    0    106.0
```

```
      1914       1913    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   106.0

      1915        350 1914    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   157.0

      1916       1262    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0      .0

      1917          0    0    0    0    0    0    0    0    0    0        305    0    0    0    0    0    0    0    0    0   103.0

      1919       1934  353    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    41.0

      1920       1921    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   690.0

      1921        297 1917    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   690.0

      1922        300    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   177.0

      1923          0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0      .0

      1924        290 1289    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  3653.0

      1925        378    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    94.0

      1926        381    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    77.0

      1927       1238    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   799.0

      1928       1611 1606    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0 73656.0

      1929       1712    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  2356.0

      1931       1491 1461    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  2258.0

      1932       1465    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    93.0

      1933       1931    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  2258.0

      1934        360    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0      .0

      1935       1442 1916    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0  2719.0

      1937        348    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0      .0

      1938          0    0    0    0    0    0    0    0    0    0       1480    0    0    0    0    0    0    0    0    0   732.0

      1939       1313  314    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0     7.0

      1940       1910 1408 1942    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0    88.0

      1941       1393    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0      .0

      1942          0    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0      .0

      1943        322    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   454.0

      1944       1365  370    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   170.0

      1945       1944    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   170.0

      1946       1376 1943    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0   624.0

      1947       1599    0    0    0    0    0    0    0    0    0          0    0    0    0    0    0    0    0    0    0 86852.0
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  359 TO GUTTER  266 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  426 TO GUTTER  385 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  541 TO GUTTER  388 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
 ORDER OF TREE STRUCTURE (NGUT VALUE) DECREASES THROUGH DIVERSION FROM GUTTER  565 TO GUTTER  389 COMP THROUGH DIVERSION WILL LAG ONE
TIME STEP UNLESS GUTTER CARDS ARE MODIFIED TO REVERSE DIVERSION.
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*** PEAK FLOWS, STAGES AND STORAGES OF GUTTERS AND DETENTION DAMS ***

 CONVEYANCE    PEAK        STAGE       STORAGE      TIME
  ELEMENT      (CFS)        (FT)       (AC-FT)    (HR/MIN)

      1        8302.       8.5                    11   30.
      2        3430.       6.8                     8   30.
      3        1354.       2.5                     8   25.
      4        1378.       2.3                     8   25.
      5        7926.       8.3                    11   30.
      6        7805.       7.3                    11   30.
      7        1213.       4.5                     8   30.
      8       19411.       (DIRECT FLOW)           9   15.
      9         585.       2.8                     8   25.
     10         300.       1.2                     8   15.
     11         263.       1.3                     8   10.
     12         262.       1.2                     8   15.
     13         847.       2.1                     8   20.
     14         282.       1.2                     8   10.
     15       16157.       (DIRECT FLOW)           9   25.
     16       16088.       (DIRECT FLOW)           9   25.
     17        1466.       3.0                     8   30.
     18         904.       3.3                     8   30.
     20         238.       1.6                     8   25.
     21         348.       1.9                     8   30.
     22        3551.       5.2                     8   40.
     23        1775.       4.5                     8   40.
     24        1317.       3.8                     8   35.
     25         346.       1.7                     8   25.
     26         903.       3.5                     8   30.
     27         108.        .7                     8   20.
     28         686.       2.1                     8   30.
     29         171.       1.4                     8   20.
     30         363.       1.6                     8   30.
     31         433.       2.1                     8   30.
     32         104.       1.0                     8   25.
     33         267.       1.6                     8   25.
     34         589.       2.8                     8   35.
     35         180.       1.1                     8   20.
     36         228.       1.3                     8   30.
     37         598.       2.9                     8   40.
     38         128.        .8                     8   30.
     39         314.       1.5                     8   25.
     40       15373.      10.8                     9   30.
     41         240.       1.2                     8   15.
     42       15201.       9.8                     9   30.
     44       15451.       (DIRECT FLOW)          10   10.
     46       13993.      10.4                     9   30.
     48       14371.      11.2                     8   55.
     49         609.       2.0                     8   10.
     50       14253.       7.3                     8   50.
     51        1055.       3.7                     8   10.
     52       12290.       9.4                     8   45.
     53         433.       2.8                     8   20.
     54         133.       1.5                     8   15.
     55         237.       2.0                     8   20.
     56        2174.       4.0                     8   25.
     57        1081.       2.4                     8   20.
     58         147.       1.5                     8   15.
     59       13833.      10.4                     9   25.
     60         231.       1.4                     8   20.
     61         672.       3.0                     8   40.
     62        1388.       3.0                     8   40.
     63         132.       1.4                     8   35.
     64         138.       2.0                     8   30.
     65         680.       4.2                     8   40.
     66          92.        .9                     8   20.
     67         527.       2.5                     8   25.
     68         686.       2.4                     8   20.
     69         238.       1.5                     8   20.
     70         344.       1.7                     8   20.
     71         679.       2.8                     8   35.
     72         225.       1.6                     8   20.
     73         246.       1.9                     8   40.
     74       13360.      10.1                     9   25.
     75        2464.       6.0                     8   55.
     76         367.       2.0                     8   25.
     77        2908.       5.6                     8   55.
     78          99.        .9                     8   35.
     79        2351.       4.6                     8   55.
     80        1835.       2.7                     8   40.
     81         690.       2.5                     8   40.
     82         460.       1.9                     8   35.
     83          78.       1.0                     8   30.
     84         329.       1.7                     8   30.
     85          67.       1.4                     8   25.
     86         196.       1.5                     8   30.
     87         433.       2.4                     8   40.
     88         459.       1.7                     8   40.
     89         250.       2.0                     8   35.
     93          38.        .7                     8   25.
     94       10515.       7.3                     9   25.
     95        8338.       6.7                     9   30.
     96        8188.       9.5                     9   25.
     97        3234.       5.1                     8   45.
     98         365.       2.0                     8   20.
     99        2780.       5.1                     8   40.
    100         565.       2.4                     8   25.
    101        2237.       4.8                     8   40.
    102        1263.       3.4                     8   45.
    103        1044.       2.5                     8   35.
    104         806.       3.3                     8   35.
    105         161.       1.6                     8   20.
    106         142.       1.6                     8   30.
    107         957.       3.5                     8   35.
    108         162.       1.4                     8   25.
    109         748.       3.0                     8   30.
    110         514.       2.6                     8   30.
    111         166.       1.4                     8   20.
    112         248.       1.9                     8   20.
    113         145.       1.4                     8   25.
    114          16.        .5                     8   15.
    115          95.       1.1                     8   20.
    116         217.       2.0                     8   40.
    117         261.       2.4                     8   20.
    118         228.       1.9                     8   30.
    119         388.       3.1                     8   30.
    120         154.       1.7                     8   15.
    121         294.       2.1                     8   25.
    122        1189.       3.2                     8   45.
    123         655.       2.3                     8   40.
    124         355.       2.0                     8   35.
    125         100.       1.0                     8   30.
    126          70.        .9                     8   20.
    127         263.       1.4                     8   35.
    128         246.       1.2                     8   35.
    129        7199.       7.5                     9   20.
    130         887.       2.6                     8   40.
    131         201.       1.2                     8   20.
    132         127.       1.3                     8   30.
    133         535.       2.4                     8   40.
    134         343.       1.9                     8   30.
    135          11.        .4                     8   15.
    136          21.        .5                     8   15.
    137        6579.       5.6                     9   15.
    138         245.       1.6                     8   35.
    139        6336.       5.4                     9   15.
    140         967.       2.9                     8   40.
    141         163.       1.5                     8   20.
    142         734.       2.9                     8   35.
    143         278.       1.8                     8   25.
    144          97.       1.0                     8   25.
    145          50.        .9                     8   25.
    146         407.       1.9                     8   35.
    147         160.       1.2                     8   30.
    148         140.       1.2                     8   25.
    149        5657.       4.9                     9   15.
    150          93.       1.1                     8   15.
    151         218.       1.7                     8   20.
    152        5442.       5.2                     9   10.
    153         127.       1.0                     8   30.
    154        5369.       5.7                     8   55.
    155         101.        .7                     8   25.
    156        5212.       5.6                     8   55.
    157        4597.       5.5                     8   50.
    158         508.       1.9                     8   35.
    159          29.        .5                     8   20.
    160         312.       1.5                     8   30.
    161         157.       1.4                     8   30.
    162          25.        .5                     8   15.
    163         536.       1.8                     8   30.
    164          80.        .7                     8   20.
    165         232.       1.6                     8   30.
    166         395.       1.7                     8   30.
    167         141.       1.2                     8   25.
    168          18.        .5                     8   15.
    169          13.        .4                     8   15.
    170         312.       1.9                     8   25.
    171         190.       1.3                     8   20.
    172        3785.       6.0                     9    0.
    173        1705.       2.8                     8   35.
    174         148.       1.3                     8   20.
    175        1351.       2.6                     8   40.
    176        1135.       3.1                     8   45.
    177         186.       1.4                     8   30.
    178          34.        .7                     8   20.
    179          75.        .4                     8   40.
    180         551.       2.6                     8   30.
    181          33.        .6                     8   20.
    182         192.       1.2                     8   30.
    183          40.        .6                     8   20.
    184         122.        .8                     8   30.
    185          26.        .7                     8   25.
    186          83.        .8                     8   20.
    187        2337.       4.0                     9   15.
    192        1993.       3.7                     9    5.
    193         347.        .9                     8   15.
    194         720.       2.2                     8   40.
    195          17.        .3                     8   15.
    196          23.        .6                     8   20.
    198         435.       1.8                     8   40.
    199          37.        .7                     8   25.
    200          34.        .6                     8   20.
    201         376.       1.7                     8   30.
    202          18.        .5                     8   15.
    203          87.        .9                     8   15.
    204         275.       1.3                     8   25.
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 205      1304.     3.3                     9   5.
 206        19.      .1                     8  15.
 207      1199.     2.7                     9   0.
 208        19.      .3                     8  15.
 211      1152.     3.6                     8  40.
 212       292.     1.3                     8  35.
 213       195.     1.1                     8  35.
 214        91.      .7                     8  20.
 215       849.     2.7                     8  40.
 216       122.      .6                     8  25.
 217        18.      .1                     8  15.
 218       492.     2.8                     8  25.
 219       728.     2.4                     8  30.
 220       223.     1.2                     8  30.
 221        68.      .9                     8  15.
 222       427.     2.5                     8  25.
 223       139.      .8                     8  30.
 224       288.     2.3                     8  20.
 225        66.      .9                     8  15.
 226       108.      .6                     8  20.
 231      3055.     3.9                     8  25.
 232      3073.     (DIRECT FLOW)          11  30.
 233      3057.     4.6                    11  30.
 234       349.     3.1                     8  30.
 235       409.     1.4                     8  20.
 236      3073.     (DIRECT FLOW)          11  30.
 237      6652.     (DIRECT FLOW)          11   5.
 238      6652.     (DIRECT FLOW)          11   5.
 239       409.     (DIRECT FLOW)           8  20.
 240      6449.     4.3                    11   5.
 241      6557.     4.1                    10  50.
 242      6934.     (DIRECT FLOW)          10  20.
 243      5687.     3.8                    10  20.
 244      2068.     3.9                     8  15.
 245     10684.     9.6                     8  40.
 246      4112.     5.4                     8  30.
 247      1419.     3.0                     8  20.
 248      1185.     2.7                     8  25.
 249       752.     2.3                     8  15.
 250      2021.     4.3                     8  25.
 251      3103.     (DIRECT FLOW)          11   5.
 252      2588.     (DIRECT FLOW)          11  30.
 261     15451.     (DIRECT FLOW)          10  10.
 262     11362.     3.8                    10  15.
 263     11362.     (DIRECT FLOW)          10  15.
 264     11079.     4.1                    10  20.
 265     11079.     (DIRECT FLOW)          10  20.
 266       248.     (DIRECT FLOW)          10  15.
 267      6011.     (DIRECT FLOW)          10  20.
 268      5870.      .1          86.6      10  30.
 269      5599.     (DIRECT FLOW)          10  20.
 270      9057.     8.8                    12   5.
 271      9123.     (DIRECT FLOW)          11  50.
 280      5735.     (DIRECT FLOW)          10  25.
 289      1154.     6.1                    10  50.
 290       896.     5.3                    10  35.
 291      5870.     (DIRECT FLOW)          10  30.
 292      4979.     4.7                    10  40.
 293       532.    10.4                    10  25.
 294      5735.     (DIRECT FLOW)          10  25.
 295      5153.      .1         108.1      10  35.
 296      5153.     (DIRECT FLOW)          10  35.
 297      1336.     5.5                     8  10.
 298       153.      .1           4.9       8  25.
 299       278.     1.0                     8  10.
 300        26.      .1          34.5       9  40.
 301       655.     1.2                     8   5.
 303       289.     (DIRECT FLOW)           8  10.
 304       126.     1.9                     8  25.
 308       409.     (DIRECT FLOW)          10  55.
 310      1387.     (DIRECT FLOW)          11  10.
 311      1145.     (DIRECT FLOW)          11  10.
 312      1093.     7.5                    11  15.
 313      1047.     (DIRECT FLOW)          11   5.
 314       409.     6.3                    11   0.
 315      1377.     2.7                    11  15.
 316       154.     1.2                     8  10.
 317      1380.     (DIRECT FLOW)          11  15.
 318       354.     3.8                     8  35.
 319      6516.     8.6                    11  55.
 320      2602.     2.9                    11  35.
 321      3097.     3.6                    11  20.
 322      6086.     (DIRECT FLOW)          11  30.
 323      3265.     (DIRECT FLOW)          11  15.
 324      4271.     (DIRECT FLOW)          11  15.
 325      4271.     (DIRECT FLOW)          11  15.
 326      3393.     9.4                    11  15.
 327      2013.     7.8                    11  15.
 328      2832.     (DIRECT FLOW)          11  10.
 329       969.     6.4                    11  10.
 330       970.     (DIRECT FLOW)          11   5.
 331      1865.     (DIRECT FLOW)          11   5.
 332      2469.     (DIRECT FLOW)          11   5.
 333      1133.     2.6                    11  10.
 334      1337.     2.8                    11   0.
 335      3015.     6.7                    11   5.
 336      1278.     (DIRECT FLOW)          11  10.
 337      1861.     3.2                    11  10.
 338       168.     2.0                     8  20.
 339      1917.     (DIRECT FLOW)          11   5.
 340      3658.     (DIRECT FLOW)          11   0.
 341      5011.     (DIRECT FLOW)          10  55.
 342      8105.     (DIRECT FLOW)          10  55.
 343      9765.     (DIRECT FLOW)          10  55.
 344       266.     (DIRECT FLOW)           8  15.
 345       557.     1.8                     8  10.
 346       306.     1.3                     8   5.
 347      9748.     8.9                    10  55.
 348      2510.     (DIRECT FLOW)          11   5.
 349        20.      .4                     8  25.
 350       205.     3.3                     8  10.
 351      5546.     7.8                    10  50.
 352      9746.      .1          48.9      10  45.
 353       136.     1.3                     8  10.
 354      4208.     4.0                    10  55.
 355        25.     2.4                     8  10.
 356      9765.      .1          33.4      10  55.
 357       923.     (DIRECT FLOW)          11  20.
 358      1141.     5.3                    11  20.
 359      9764.     (DIRECT FLOW)          10  55.
 360      9768.     (DIRECT FLOW)          10  40.
 361       112.     (DIRECT FLOW)           8   5.
 362      1660.     (DIRECT FLOW)          10  55.
 363        23.      .6                     8  10.
 366       266.     1.4                     8  15.
 367       103.     1.0                     8  15.
 368       242.     (DIRECT FLOW)           8  10.
 369        80.      .9                     8   5.
 370       204.     (DIRECT FLOW)           8   5.
 371       370.     2.2                     8  20.
 372       172.     (DIRECT FLOW)           8  15.
 373        48.     1.4                     8  25.
 374        36.     1.4                    10  35.
 375       248.     (DIRECT FLOW)          10  25.
 376       248.     4.0                    10  25.
 377       111.     3.2                    10  40.
 378       373.     (DIRECT FLOW)          10  25.
 379       227.     (DIRECT FLOW)           8  10.
 380       227.     4.3                     8  10.
 381       338.     (DIRECT FLOW)          10  50.
 382       338.     8.0                    10  50.
 383      5125.     (DIRECT FLOW)          10  40.
 384       281.     4.2                     8  10.
 385      1251.     (DIRECT FLOW)          11   0.
 386      2430.     (DIRECT FLOW)          11   5.
 387       199.     (DIRECT FLOW)          11  15.
 388      1064.     (DIRECT FLOW)           8  40.
 389      3550.     (DIRECT FLOW)          11   5.
 390      1267.     (DIRECT FLOW)           8  40.
 391      1221.     7.3                    11  30.
 392      1224.     (DIRECT FLOW)          11  20.
 393      1141.     (DIRECT FLOW)          11  20.
 394      1892.     3.2                    11   5.
 395      1891.     (DIRECT FLOW)          11   5.
 396      1660.     (DIRECT FLOW)          10  55.
 397      7792.      .1        2858.3      11  25.
 398      1660.      .1           4.8      10  55.
 399      9057.     (DIRECT FLOW)          12   5.
1238       203.     (DIRECT FLOW)           8  40.
1262      9682.     (DIRECT FLOW)          10  15.
1267      5479.     (DIRECT FLOW)          10  20.
1289       261.     (DIRECT FLOW)          10  30.
1290       894.     (DIRECT FLOW)          10  30.
1291      5870.     (DIRECT FLOW)          10  30.
1293       532.     (DIRECT FLOW)          10  25.
1294      5585.     3.8                    10  25.
1295      5203.     (DIRECT FLOW)          10  30.
1296      5153.     (DIRECT FLOW)          10  35.
1301      3015.     (DIRECT FLOW)          11   5.
1302      3015.     (DIRECT FLOW)          11   5.
1303       906.     (DIRECT FLOW)          11   5.
1304      2109.     (DIRECT FLOW)          11   5.
1305      4513.     (DIRECT FLOW)          11   5.
1306        65.     (DIRECT FLOW)          11  10.
1307      2404.     (DIRECT FLOW)          11   5.
1308      2469.     (DIRECT FLOW)          11   5.
1309      2832.     (DIRECT FLOW)          11  10.
1310       639.     (DIRECT FLOW)          11  10.
1311      2018.     (DIRECT FLOW)          11  10.
1312       814.     (DIRECT FLOW)          11  10.
1313       639.     (DIRECT FLOW)          11   5.
1320      2599.     (DIRECT FLOW)          11  30.
1321      3100.     (DIRECT FLOW)          11  15.
1323      3265.     (DIRECT FLOW)          11  15.
1325       889.     (DIRECT FLOW)          11  25.
1329       118.     1.1                     8  10.
1330       818.     4.7                    11  15.
1331      1325.     (DIRECT FLOW)          11   5.
1332       818.     (DIRECT FLOW)          11  15.
1333      1148.     (DIRECT FLOW)          11   0.
1334      1353.     (DIRECT FLOW)          10  55.
1335      3095.     (DIRECT FLOW)          10  55.
1336      1278.     (DIRECT FLOW)          11  10.
1337      3097.     (DIRECT FLOW)          11  20.
1338      1407.     (DIRECT FLOW)          11  20.
1339        26.     (DIRECT FLOW)           8  20.
1340      3658.     (DIRECT FLOW)          11   0.
1341      5011.     (DIRECT FLOW)          10  55.
1342      8105.     (DIRECT FLOW)          10  55.
1343      9765.     (DIRECT FLOW)          10  55.
1348      2510.     (DIRECT FLOW)          11   5.
1357       923.     (DIRECT FLOW)          11  20.
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1360     4821.     (DIRECT FLOW)      10  45.
1361     1404.     4.2                11  25.
1362     1660.     (DIRECT FLOW)      10  55.
1363     1690.     (DIRECT FLOW)      11  20.
1364     1679.     4.4                11  25.
1365     2413.     (DIRECT FLOW)      11  25.
1366      179.     (DIRECT FLOW)      10  55.
1367       37.     (DIRECT FLOW)       8  15.
1368      818.     (DIRECT FLOW)      11  15.
1369      739.     (DIRECT FLOW)      11  15.
1370      738.     4.2                11  20.
1371       79.     (DIRECT FLOW)      11  15.
1372     1838.     (DIRECT FLOW)      11  25.
1373     2408.     (DIRECT FLOW)      11  30.
1374       36.     (DIRECT FLOW)      10  25.
1375      646.     (DIRECT FLOW)      11  30.
1376      647.     4.6                11  30.
1377     1762.     (DIRECT FLOW)      11  30.
1378      373.     (DIRECT FLOW)      10  25.
1381      339.     (DIRECT FLOW)      10  40.
1382       35.     (DIRECT FLOW)      10  35.
1383     5118.     (DIRECT FLOW)      10  40.
1386     2430.     (DIRECT FLOW)      11   5.
1387      199.     (DIRECT FLOW)      11  15.
1392     1007.     (DIRECT FLOW)      11  15.
1393      218.     (DIRECT FLOW)      11  25.
1396     1660.     (DIRECT FLOW)      10  55.
1401       34.     (DIRECT FLOW)      11  20.
1402     3264.     (DIRECT FLOW)      11  15.
1403      484.     (DIRECT FLOW)      11  30.
1404      212.     (DIRECT FLOW)      10  25.
1405      304.     (DIRECT FLOW)      10  40.
1406      190.     (DIRECT FLOW)       8  10.
1407      540.     (DIRECT FLOW)      11   5.
1408      240.     (DIRECT FLOW)       8  15.
1409      748.     (DIRECT FLOW)      11  10.
1410       95.     (DIRECT FLOW)       8  15.
1411    11667.     7.0                 9  40.
1412    11667.     (DIRECT FLOW)       9  40.
1413    11667.     (DIRECT FLOW)       9  40.
1414     8892.     (DIRECT FLOW)       9  45.
1415      162.     (DIRECT FLOW)       8  15.
1416     1448.     3.9                 8  45.
1420      181.     (DIRECT FLOW)       8  10.
1421    16586.     8.2                 9  25.
1423    16586.     (DIRECT FLOW)       9  25.
1424    11968.     (DIRECT FLOW)       9  25.
1425       22.     (DIRECT FLOW)       8   0.
1426      170.     1.8                 8  25.
1427     5769.     (DIRECT FLOW)      10  10.
1428     4611.     3.5                 9  35.
1429     5442.     (DIRECT FLOW)       9  30.
1430       73.     (DIRECT FLOW)       8  15.
1431       67.     1.1                 8  15.
1435      119.     (DIRECT FLOW)       8  15.
1436      104.     1.9                 8  20.
1438      170.     (DIRECT FLOW)       8  20.
1440      108.     (DIRECT FLOW)       8  10.
1441    16557.     8.3                 9  25.
1442     1703.     2.4                10  15.
1445      113.     (DIRECT FLOW)       8  15.
1446       97.     1.6                 8  25.
1450      103.     (DIRECT FLOW)       8  20.
1451    17027.     7.8                 9  15.
1453    17076.     (DIRECT FLOW)       9  15.
1455      351.     (DIRECT FLOW)       8  10.
1456      311.      .8                 8  25.
1457      311.     (DIRECT FLOW)       8  25.
1460      234.     (DIRECT FLOW)       8  10.
1461      214.     2.4                 8  20.
1465      205.     (DIRECT FLOW)       8  10.
1467      645.     (DIRECT FLOW)       8  25.
1468      642.     2.8                 8  30.
1480     1513.     4.0                 8  15.
1481       11.      .0        190.9   23  35.
1482       11.     (DIRECT FLOW)      22  30.
1490      486.     (DIRECT FLOW)       8  10.
1491      444.     3.2                 9  15.
1500      715.     (DIRECT FLOW)       8  10.
1501      564.     3.3                 8  35.
1505      664.     (DIRECT FLOW)       8  10.
1506     2919.     3.8                10  25.
1507    15351.     (DIRECT FLOW)      10   5.
1508    12489.     (DIRECT FLOW)      10   5.
1509     2775.     (DIRECT FLOW)       9  40.
1510      159.     (DIRECT FLOW)       8  10.
1511    14226.     6.4                10   5.
1512    15278.     7.3                10  10.
1513    14226.     (DIRECT FLOW)      10   5.
1514     1737.     (DIRECT FLOW)      10   5.
1515       41.     (DIRECT FLOW)       8   5.
1517      112.     1.3                 8  50.
1520      269.     (DIRECT FLOW)       8  10.
1521    14432.     6.3                 9  50.
1522    14602.     (DIRECT FLOW)       9  55.
1525      156.     (DIRECT FLOW)       8   5.
1526     5434.     4.4                 9  35.
1528     4618.     (DIRECT FLOW)       9  30.
1530      340.     (DIRECT FLOW)       8  15.
1531      913.     2.6                 8  40.
1532     5907.     (DIRECT FLOW)       9  35.
1533    14551.     (DIRECT FLOW)       9  45.
1534     8820.     4.7                 9  50.
1537     5892.     4.7                 9  35.
1541      495.     (DIRECT FLOW)       8  10.
1542      317.     2.4                 8  35.
1544    14582.     (DIRECT FLOW)       9  50.
1545      397.     (DIRECT FLOW)       8  10.
1546      664.     2.6                 8  35.
1548    14537.     4.2                 9  55.
1550      861.     (DIRECT FLOW)       8  10.
1551     1089.     3.0                 8  30.
1553     1399.     (DIRECT FLOW)       8  30.
1556      163.     (DIRECT FLOW)       8  10.
1557      310.     2.4                 8  30.
1560      294.     (DIRECT FLOW)       8  10.
1561      288.     1.9                 8  10.
1563      494.     (DIRECT FLOW)       8  10.
1565      210.     (DIRECT FLOW)       8  10.
1566      206.     1.6                 8  15.
1570      230.     (DIRECT FLOW)       8  15.
1571      229.      .8                 8  20.
1575      553.     (DIRECT FLOW)       8  10.
1576      441.     2.8                 8  25.
1599    14267.     (DIRECT FLOW)      11  40.
1600       10.     (DIRECT FLOW)       8   0.
1601    15296.     6.6                 9  10.
1603    17323.     (DIRECT FLOW)       9   5.
1605      170.     (DIRECT FLOW)       8  10.
1606     1148.     3.2                 8  20.
1610      118.     (DIRECT FLOW)       8  10.
1611    14904.     6.4                 9   5.
1615      247.     (DIRECT FLOW)       8  10.
1616      226.     2.3                 8  25.
1620      299.     (DIRECT FLOW)       8  10.
1621     2305.     5.0                 8  35.
1623     2505.     (DIRECT FLOW)       8  35.
1624     2515.     5.0                 8  40.
1625      575.     (DIRECT FLOW)       8  10.
1626    14754.     6.8                 9   0.
1628    15311.     (DIRECT FLOW)       9   0.
1630      304.     (DIRECT FLOW)       8  10.
1631      845.     2.7                 8  30.
1635      706.     (DIRECT FLOW)       8  10.
1636      678.     2.5                 8  15.
1640      535.     (DIRECT FLOW)       8  10.
1641      366.     3.9                 8  25.
1643      606.     (DIRECT FLOW)       8  25.
1645      265.     (DIRECT FLOW)       8  10.
1646      246.     1.9                 8  20.
1650     1034.     (DIRECT FLOW)       8  10.
1651     1538.     4.0                 8  20.
1653     2334.     (DIRECT FLOW)       8  20.
1655      954.     (DIRECT FLOW)       8  15.
1656      836.     3.3                 8  30.
1660      779.     (DIRECT FLOW)       8  15.
1661      689.     3.1                 8  25.
1665     1150.     (DIRECT FLOW)       8   5
1666     1070.     3.1                 8  15
1705       35.     (DIRECT FLOW)       8  15
1710      184.     (DIRECT FLOW)       8  20
1711      172.     1.3                 8  35
1712     2687.     (DIRECT FLOW)       8  35.
1715      156.     (DIRECT FLOW)       8  15
1716      107.     1.1                 8  45
1800     3298.     (DIRECT FLOW)       9  35
1812     9746.     (DIRECT FLOW)      10  45.
1813     9746.     (DIRECT FLOW)      10  45
1814     5540.     (DIRECT FLOW)      10  45
1815     4205.     (DIRECT FLOW)      10  50
1816     4205.     5.4                10  55.
1817     4206.     (DIRECT FLOW)      10  55.
1818       32.     1.0                 8   0.
1820     5125.     (DIRECT FLOW)      10  40.
1821      231.     (DIRECT FLOW)       8   5.
1822     1917.     (DIRECT FLOW)      11   5.
1905    11114.     (DIRECT FLOW)      10  15.
1906     3509.     1.3                11  20.
1907     1038.     2.7                 8  50.
1908      191.     2.1                11  35.
1909     6086.     (DIRECT FLOW)      11  30.
1910      299.     (DIRECT FLOW)      11   5.
1911     1281.     (DIRECT FLOW)       8  35.
1912     1267.     6.9                 8  40.
1913     9741.     (DIRECT FLOW)      10  50.
1914     9733.     8.1                10  50.
1915     9740.     (DIRECT FLOW)      10  50.
1916     9666.     4.2                10  15.
1917       76.     1.2                 8  30.
1919     9774.     (DIRECT FLOW)      10  45.
1920     1330.     6.3                 8  15.
1921     1393.     (DIRECT FLOW)       8  10.
1922       26.      .5                 9  40.
1923     4976.     (DIRECT FLOW)      10  35.
1924     1157.     (DIRECT FLOW)      10  35.
1925      112.     (DIRECT FLOW)      10  25.
1926      160.     (DIRECT FLOW)      10  50.
1927      203.     3.6                 8  50.
1928    15313.     (DIRECT FLOW)       9   5.
1929     2673.     3.9                 8  40.
1931      541.     (DIRECT FLOW)       8  55.
1932      198.     1.2                 8  10.
```

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     1933         541.        3.0                        8   55.
     1934        9770.        6.6                       10   45.
     1935       11369.        (DIRECT FLOW)             10   15.
     1937        1185.        (DIRECT FLOW)             11    5.
     1938        1541.        (DIRECT FLOW)              8   10.
     1939        1047.        (DIRECT FLOW)             11    5.
     1940        1094.        (DIRECT FLOW)             11   10.
     1941         218.        1.4                       11   25.
     1942         639.        (DIRECT FLOW)             11   10.
     1943        6071.        7.7                       11   35.
     1944        2408.        7.3                       11   30.
     1945        2408.        (DIRECT FLOW)             11   30.
     1946        6713.        (DIRECT FLOW)             11   35.
     1947       14267.        (DIRECT FLOW)             11   40.
```
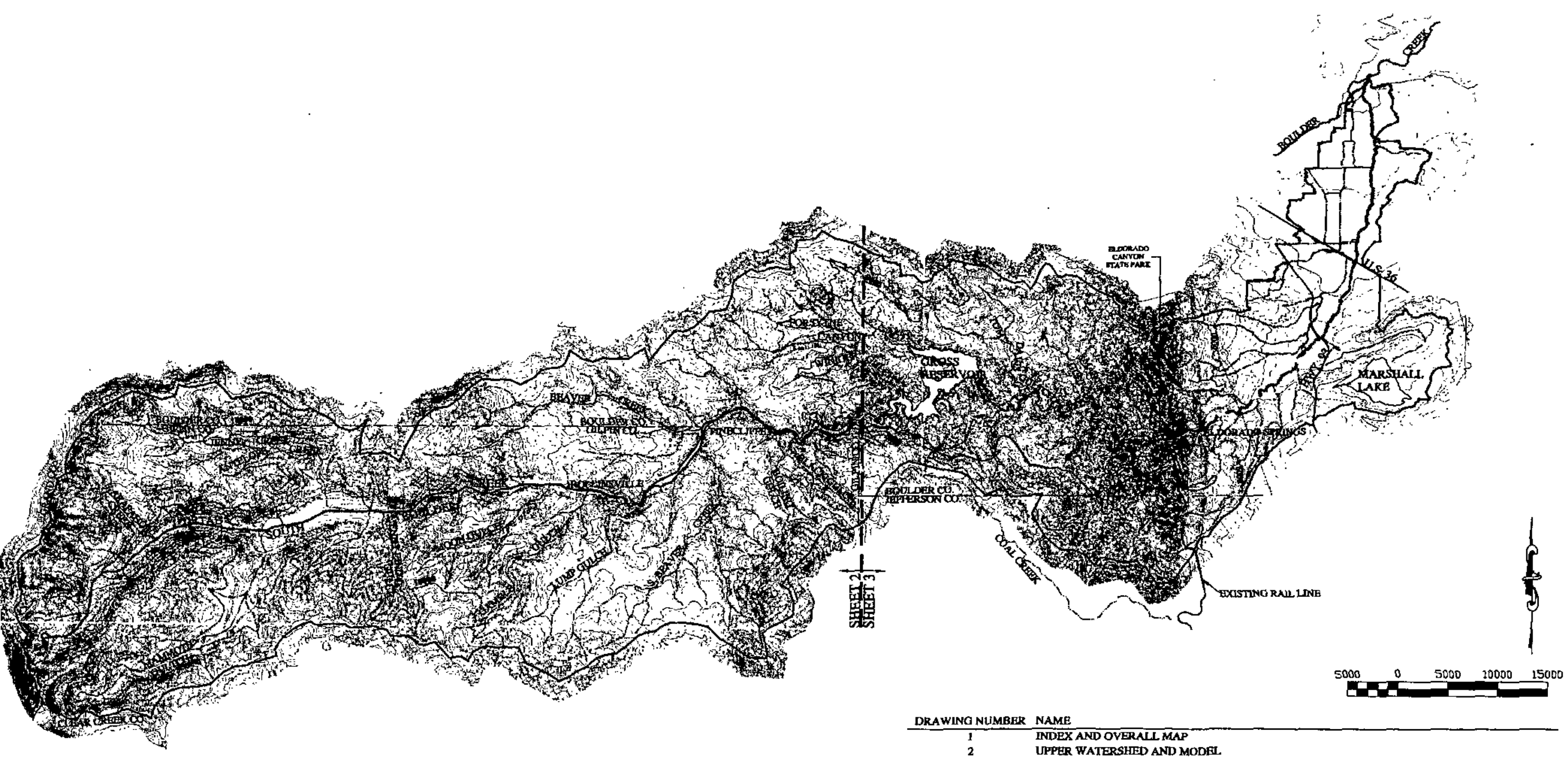

APPENDIX B

Drawing No. 1	Index and Overall Watershed Map
Drawing No. 2	Upper Watershed and Model
Drawing No. 3	Upper Watershed and Model
Drawing No. 4	Enlarged Watershed and Model - Highway 93
Drawing No. 5	Enlarged Watershed and Model - Highway 93 and Highway 36
Drawing No. 6	Enlarged Watershed and Model - Highway 36
Drawing No. 7	Enlarged Watershed and Model - Foothills Pkwy., Wellman, and Baseline Rd.
Drawing No. 8	Enlarged Watershed and Model - Highway 93
Drawing No. 9	Model Detail - Highway 93 and Baseline Splits
Drawing No. 10.	Model Detail - Highway 36 Splits
Drawing No. 11.	Model Detail - Wellman Splits



DRAWING NUMBER	NAME
1	INDEX AND OVERALL MAP
2	UPPER WATERSHED AND MODEL
3	LOWER WATERSHED AND MODEL
4	ENLARGED WATERSHED AND MODEL - HIGHWAY 93
5	ENLARGED WATERSHED AND MODEL -HIGHWAY 93 AND HIGHWAY 36
6	ENLARGED WATERSHED AND MODEL - HIGHWAY 36
7	ENLARGED WATERSHED AND MODEL - FOOTHILLS PKWY., WELLMAN, AND BASELINE RD.
8	ENLARGED WATERSHED AND MODEL - ARAPAHOE RD.
9	MODEL DETAIL - HIGHWAY 93 AND BASELINE SPLITS
10	MODEL DETAIL - HIGHWAY 36 SPLITS
11	MODEL DETAIL - WELLMAN SPLITS

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ENGINEERING ASSOCIATES, INC.

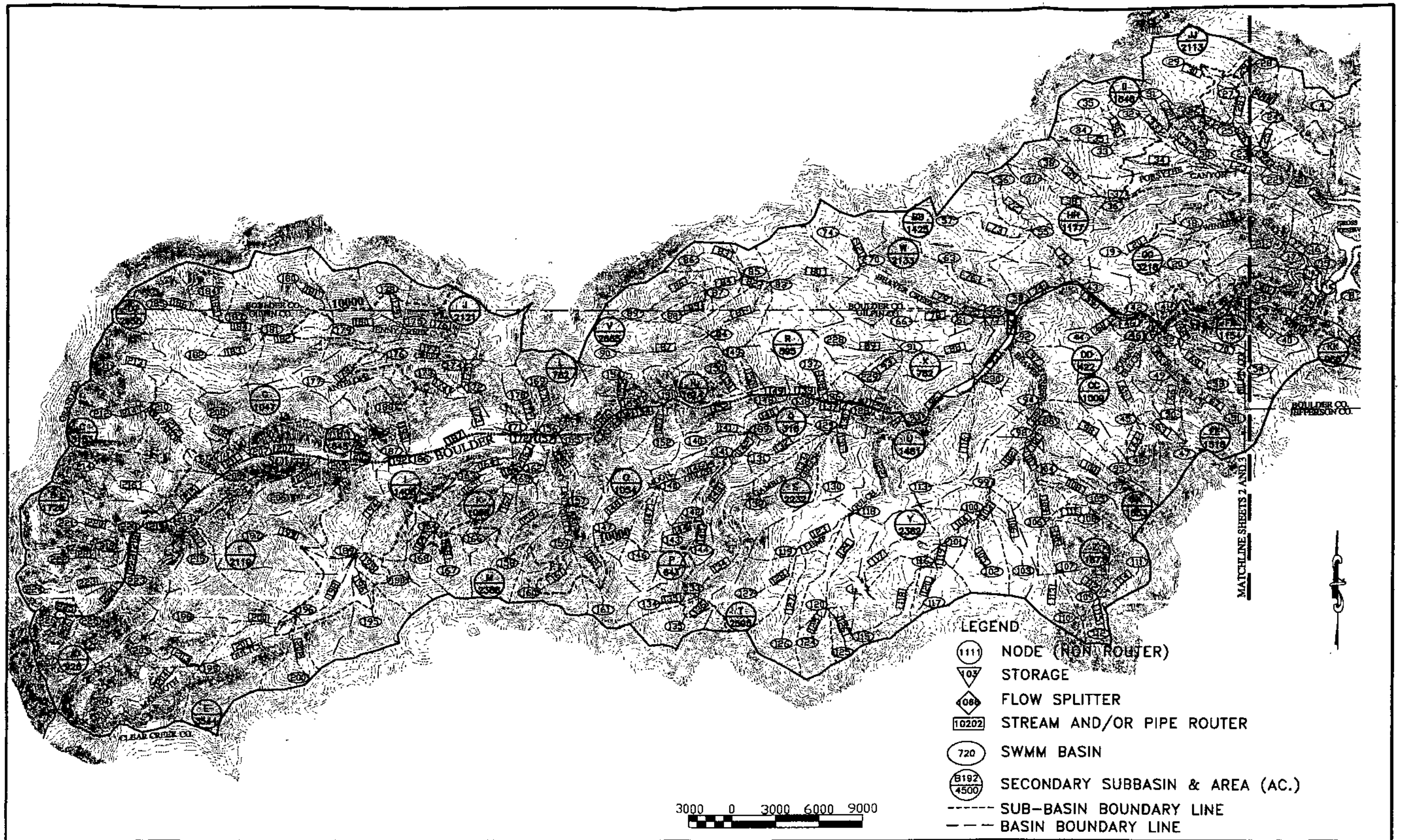
DESIGNED BY: TEA [illegible]
CHECKED BY: VCT
DATE: 7/13/98
TEA PROJECT NO.: 77[illegible]

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CITY OF BOULDER
BOULDER COUNTY
UNIVERSITY OF COLORADO

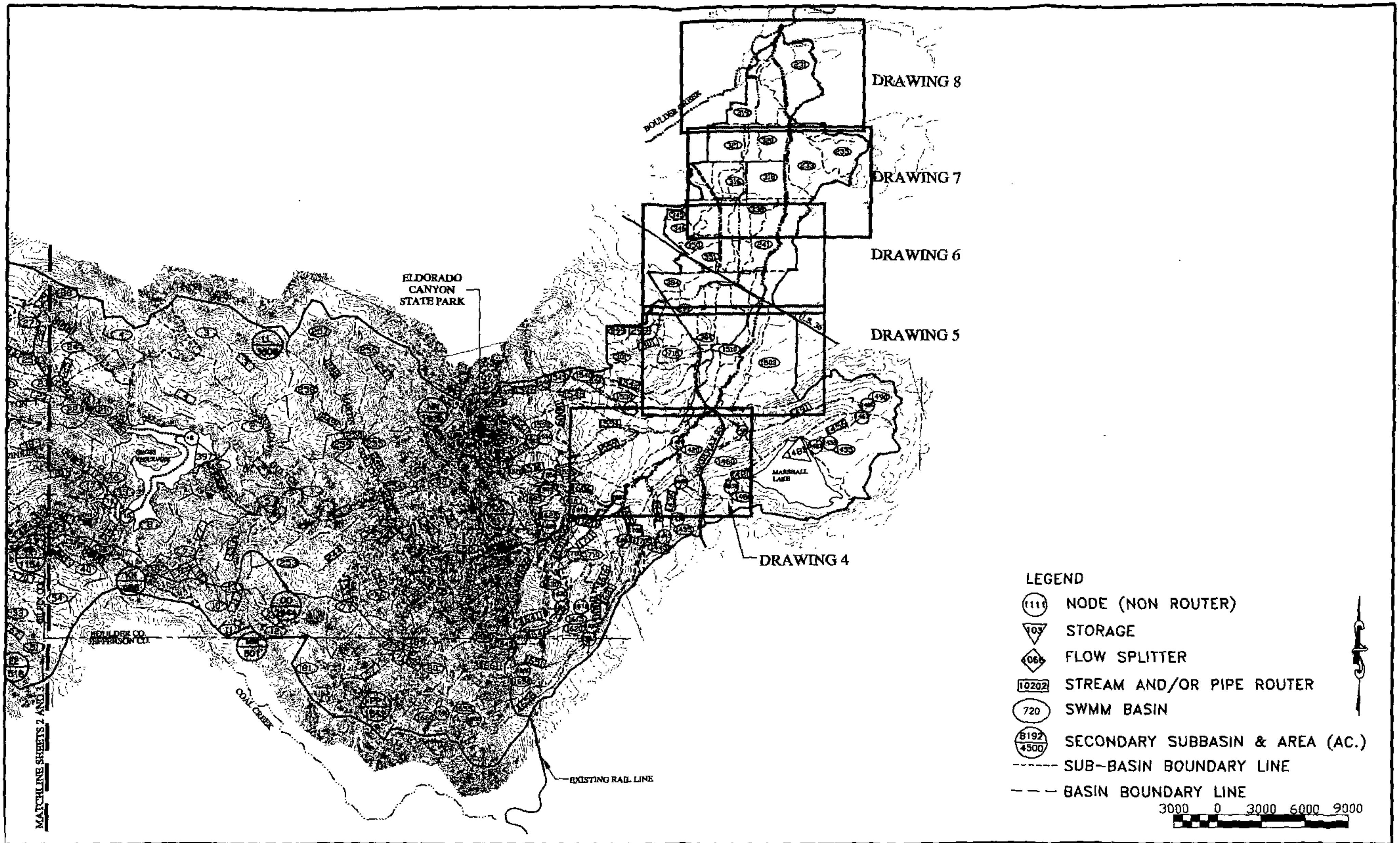
PROJECT
SOUTH BOULDER CREEK HYDROLOGY STUDY

SHT. NAME
INDEX AND OVERALL WATERSHED MAP

1



TAGGART ENGINEERING ASSOCIATES, INC.	TEA VCT	URBAN DRAINAGE AND FLOOD CONTROL DICTRICT CITY OF BOULDER BOULDER COUNTY UNIVERSITY OF COLORADO	SOUTH BOULDER CREEK HYDROLOGY STUDY	UPPER WATERSHED AND MODEL	2



TAGGART ENGINEERING ASSOCIATES, INC.

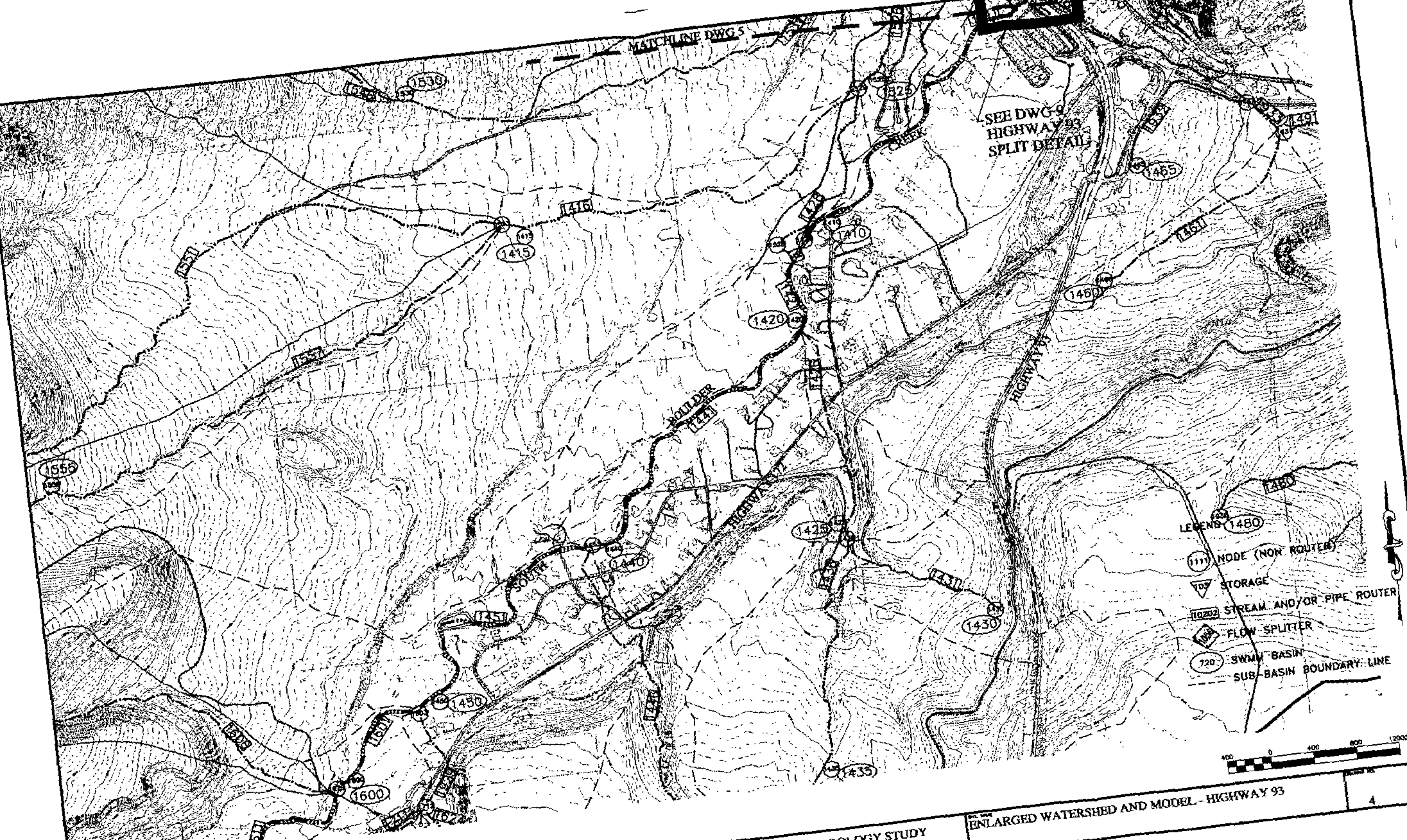
DESIGNED BY: TTA [illegible]
CHECKED BY: [illegible]
DATE: [illegible]
TEA PROJECT NO: [illegible]

CLIENT
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CITY OF BOULDER
BOULDER COUNTY
UNIVERSITY OF COLORADO

PROJECT
SOUTH BOULDER CRREK HYDROLOGY STUDY

SHT. NAME
UPPER WATERSHED AND MODEL

SHEET NO.
3



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URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CITY OF BOULDER
BOULDER COUNTY
UNIVERSITY OF COLORADO

SOUTH BOULDER CREEK HYDROLOGY STUDY

ENLARGED WATERSHED AND MODEL - HIGHWAY 93

4

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TEA PROJECT NO.: 776

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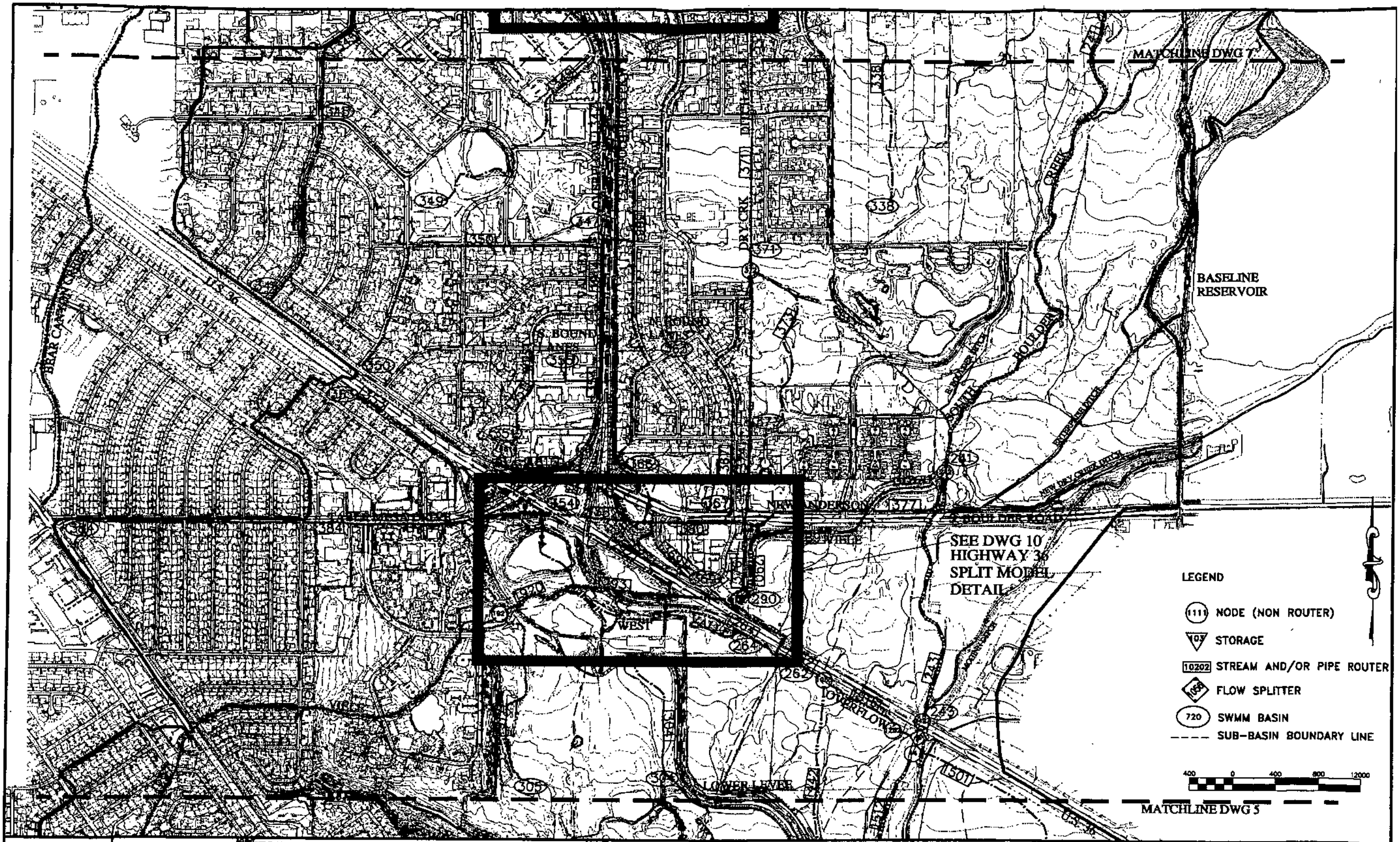
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CITY OF BOULDER
BOULDER COUNTY
UNIVERSITY OF COLORADO

PROJECT
SOUTH BOULDER CREEK HYDROLOGY STUDY

SHT. NAME
ENLARGED WATERSHED AND MODEL - HIGHWAY 93 AND HIGHWAY 36

SHEET NO.
5



TAGGART ENGINEERING ASSOCIATES, INC.

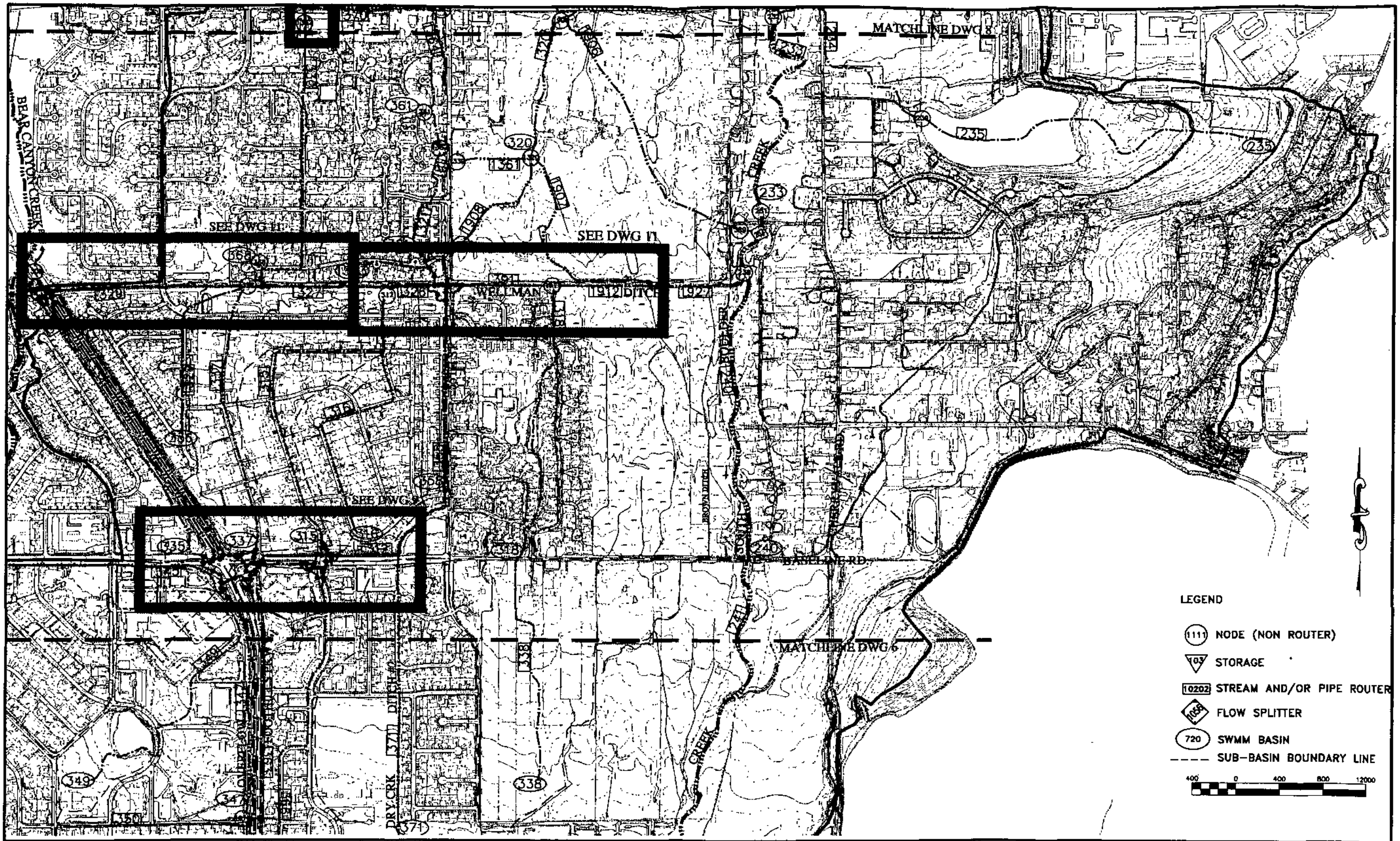
DATE: 7/13/00

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CITY OF BOULDER
BOULDER COUNTY
UNIVERSITY OF COLORADO

SOUTH BOULDER CREEK HYDROLOGY STUDY

ENLARGED WATERSHED AND MODEL - HIGHWAY 36

6



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ENGINEERING ASSOCIATES, INC.

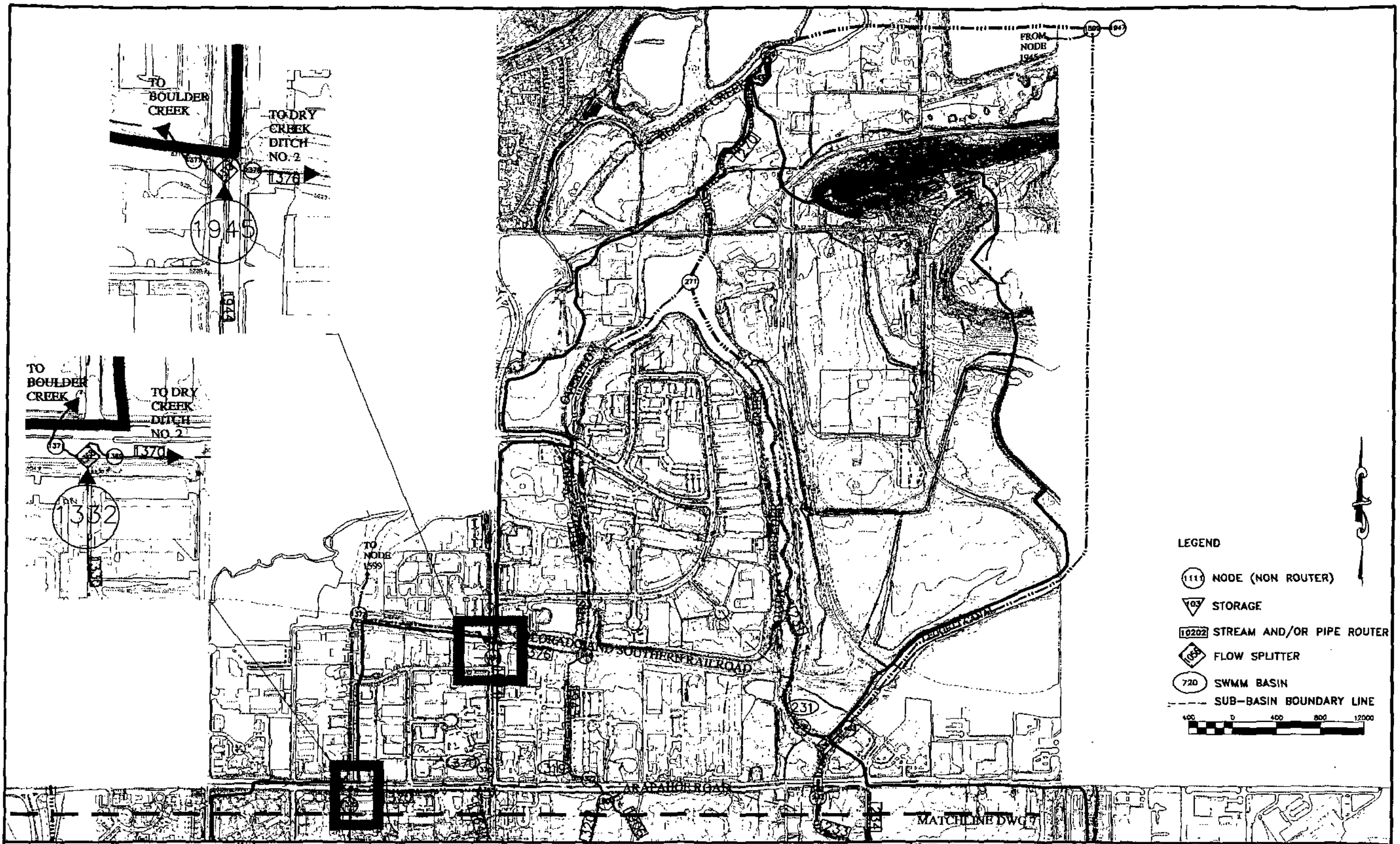
DATE: 7/14/00

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CITY OF BOULDER
BOULDER COUNTY
UNIVERSITY OF COLORADO

SOUTH BOULDER CREEK HYDROLOGY STUDY

ENLARGED WATERSHED AND MODEL - FOOTHILLS PKWY.,
WELLMAN, AND BASELINE RD.

7



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DATE: 7/13/00
TEA PROJECT NO.: TTH

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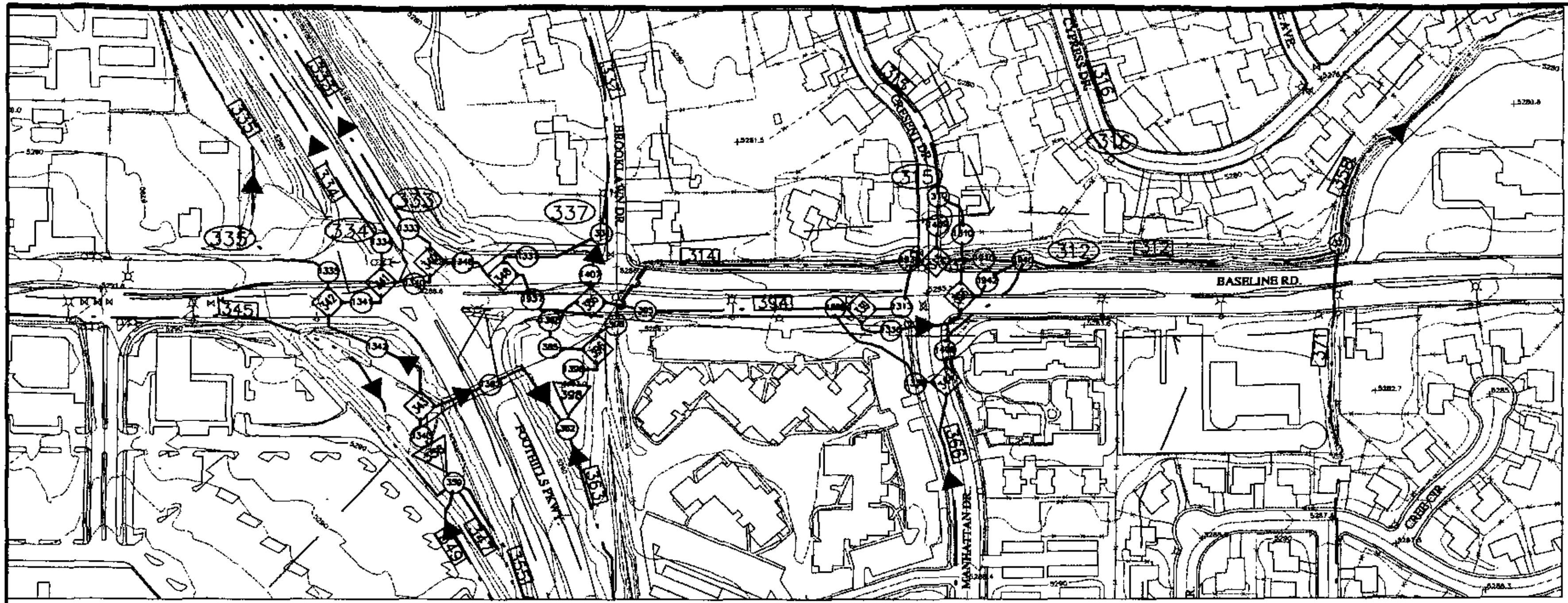
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CITY OF BOULDER
BOULDER COUNTY
UNIVERSITY OF COLORADO

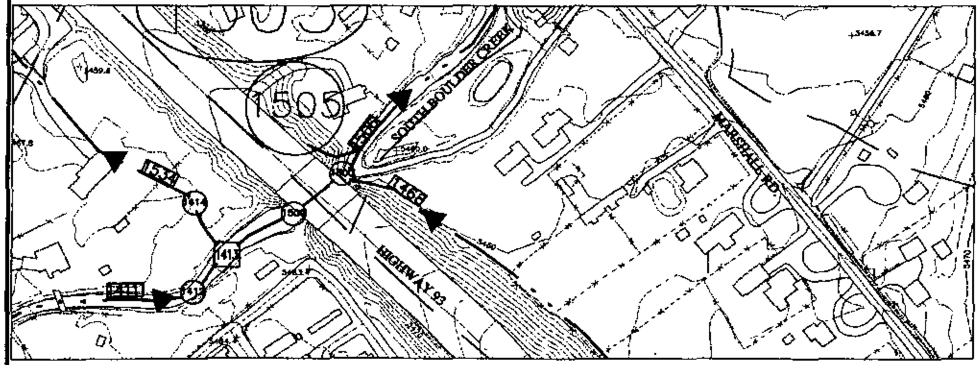
PROJECT
SOUTH BOULDER CREEK HYDROLOGY STUDY

SHT. NAME
ENLARGED WATERSHED AND MODEL - HIGHWAY 93

SHEET NO.
8



BASELINE SPLITS



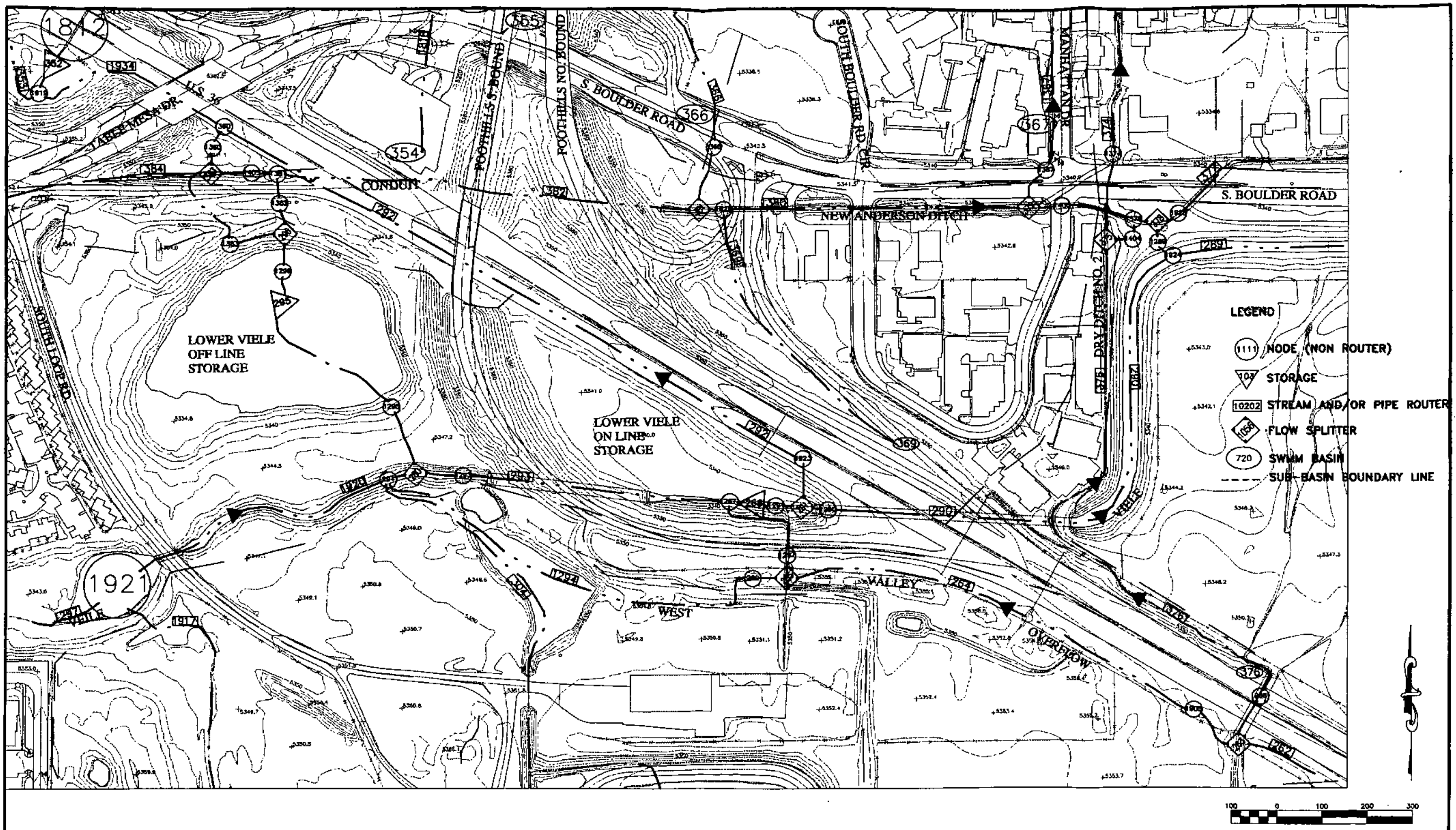
HIGHWAY 93 SPLIT

LEGEND

- (111) NODE (NON ROUTER)
- ▽107 STORAGE
- [10202] STREAM AND/OR PIPE ROUTER
- ◇1056 FLOW SPLITTER
- (720) SWMM BASIN
- ---- SUB-BASIN BOUNDARY LINE

100 0 100 200 300

TAGGART		URBAN DRAINAGE AND FLOOD CONTROL DISTRICT CITY OF BOULDER BOULDER COUNTY UNIVERSITY OF COLORADO	SOUTH BOULDER CREEK HYDROLOGY STUDY	MODEL DETAIL - HIGHWAY 93 AND BASELINE SPLITS	9



TAGGART
ENGINEERING ASSOCIATES, INC.

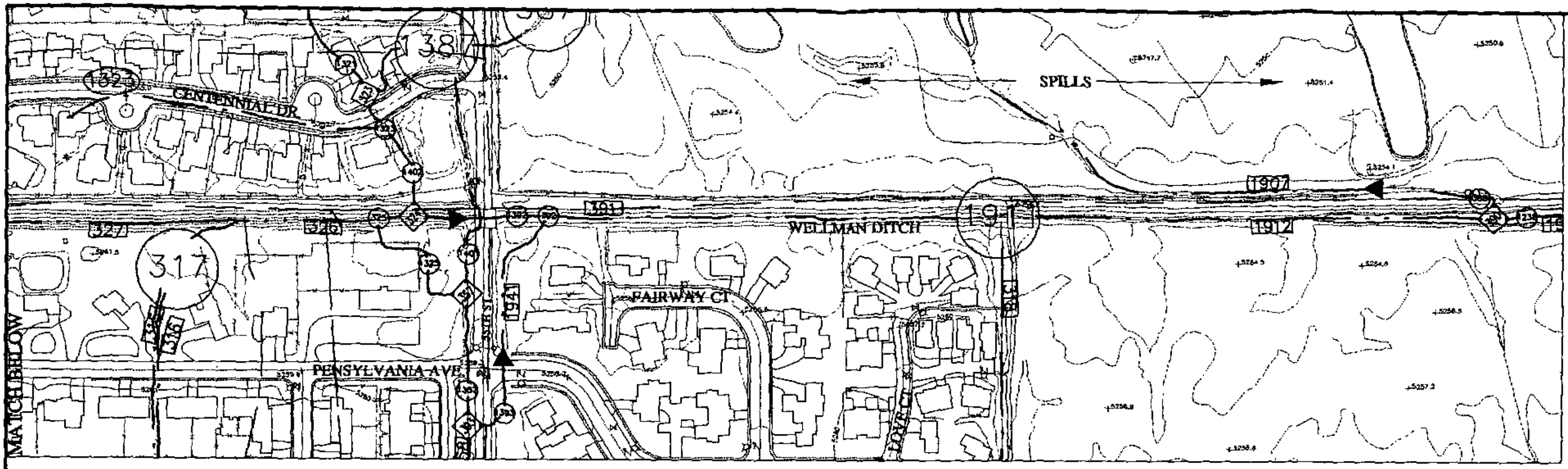
DESIGNED BY: TEA DRAWN BY: [illegible]
CHECKED BY: [illegible]
DATE: 7/13/98
TEA PROJECT NO.: 771

CLIENT
URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
CITY OF BOULDER
BOULDER COUNTY
UNIVERSITY OF COLORADO

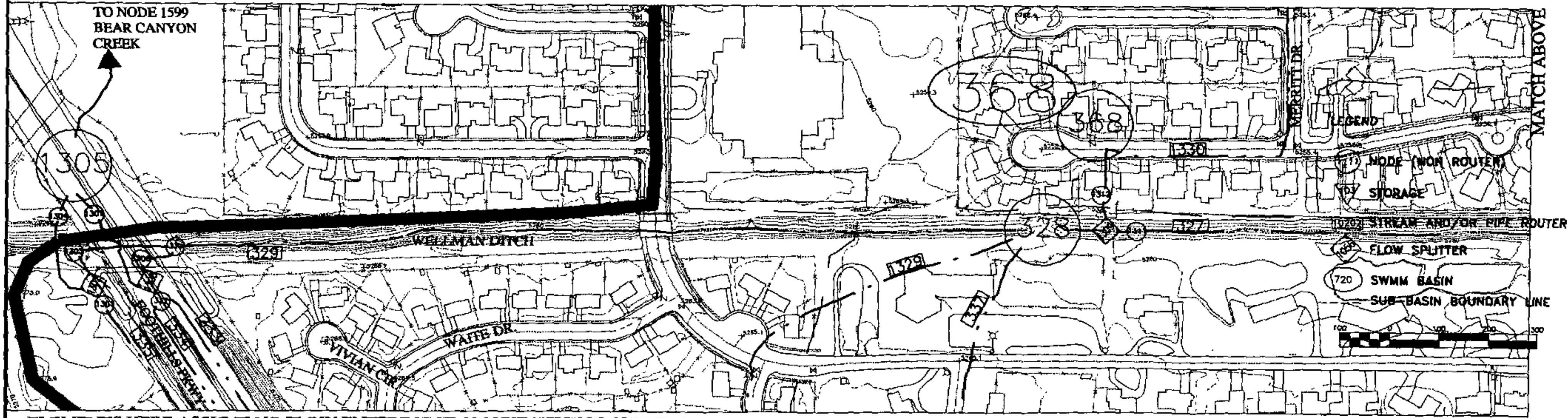
PROJECT
SOUTH BOULDER CREEK HYDROLOGY STUDY

SHT. NAME
MODEL DETAIL - HIGHWAY 36 SPLITS

FIGURE NO.
10



WELLMAN SPLITS



ELEMENTS HERE ASSUME NO FLOW ENTERING FROM THE WEST FROM WELLMAN DITCH AND BEAR CANYON CREEK

FOOTHILLS AND WELLMAN ROUTING

TAGGART ENGINEERING ASSOCIATES, INC.	DESIGNED BY: TM DRAWN BY: TM CHECKED BY: TM DATE: 7/13/00 TEA PROJECT NO.: TM	URBAN DRAINAGE AND FLOOD CONTROL DISTRICT CITY OF BOULDER BOULDER COUNTY UNIVERSITY OF COLORADO	SOUTH BOULDER CREEK HYDROLOGY STUDY	MODEL DETAIL - WELLMAN SPLITS	11