

THE CENTER FOR THE IMPROVEMENT
OF HUMAN FUNCTIONING INTERNATIONAL, INC.

3100 NORTH HILLSIDE AVENUE • WICHITA, KS 67219 USA

TO:

FIRST CLASS

AUG 24 1994

SUZANNE LOOMIS
STORM WATER ENGINEER
DEPARTMENT OF PUBLIC WORKS
CITY HALL, 455 NORTH MAIN
WICHITA KS 67202

AUG 24 1994

THE CENTER FOR THE IMPROVEMENT OF HUMAN FUNCTIONING INTERNATIONAL, INC.



A NON-PROFIT MEDICAL RESEARCH AND EDUCATIONAL ORGANIZATION FOUNDED 1975

DEDICATED TO THE MISSION OF HELPING TO STIMULATE AN EPIDEMIC OF HEALTH FOR THE BENEFIT OF HUMANKIND WORLDWIDE

DIVISIONS

OLIVE W. GARVEY CENTER FOR HEALING ARTS

BIO-CENTER LABORATORY

BIO-COMMUNICATIONS RESEARCH INSTITUTE

BIO-MEDICAL SYNERGISTICS EDUCATION INSTITUTE

ALL DIVISIONS

3100 N. HILLSIDE AVENUE WICHITA, KANSAS 67219 USA

PHONE (316) 682-3100 FAX (316) 682-5054

AFTER HOURS

OLIVE W. GARVEY CENTER FOR HEALING ARTS (316) 682-9241 (316) 682-2671

BIO-CENTER LABORATORY (316) 684-7784

BIO-COMMUNICATIONS RESEARCH INSTITUTE (316) 682-6411

BIO-MEDICAL SYNERGISTICS EDUCATION INSTITUTE (316) 682-0429

August 23, 1994

Suzanne Loomis
Storm Water Engineer
Department of Public Works
City Hall, 455 N. Main
Wichita, KS 67202

Dear Ms. Loomis:

Please find attached the Hydrologic Study for our property which was performed by Baughman Company, P.A.. We are requesting that you review their findings and notify us of the status of our request for Retention Credit. This has been sometime in the works, but I am happy to say that the study is finally completed and per the last paragraph on page five in the summary category, it looks promising.

It is my understanding that we can request credit for past months while this was pending, as well as for the future Water Department billings of the ERU charges.

Thank you, Ms. Loomis, for your time. I look forward to hearing from you.

Sincerely,

Laura Benson
Administrator

LB: bcw
Enclosure: Hydrologic Study

70-72 ERU
151,200 ft²
Acct.# 128163-01

WICHITA STORM WATER UTILITY
(WSWU)

NOTICE OF REQUEST FOR REVIEW
RETENTION CREDIT

STORM WATER MANAGEMENT

The undersigned attests that the RETENTION INFORMATION supplied here is accurate.

The legal description, service address, and account # of the property in question is:

CHISHOLM CREEK CENTER ADDITION S.W. 1/4 35-26-1E
OLIVE W. GARVEY CENTER FOR THE IMPROVEMENT OF HUMAN
FUNCTIONING, INC.

An adjustment of the service charge applied to this property is requested based on the following:

HYDROLOGIC STUDY OF REQUESTOR PROPERTY.

The above information is supported by the enclosed site specific information:

	Yes	No
a) Approved Drainage Plan for the Property	_____	X
b) Inflow Hydrograph for a 100 Year Storm Supported by Hydrologic Analysis for the Property	X	_____
c) Facility Design With Outlet Configuration	_____	X
d) Depth/Storage Relationship at 0.5' Intervals	X	_____
e) Depth/Outflow Relationship at 0.5' Intervals	X	_____
f) Amount of Impervious Area Designed to be Serviced by the Facility	X	_____
g) Current Drainage Charge	_____	_____
h) Retention Basin Easement Plat (If Applicable)	_____	X

The retention facility must be certified by a licensed professional engineer to have sufficient storage capacity for the 100-year storm with no outlet to a public drainage system. The appropriate supporting information must be provided with this application.

ATTEST:

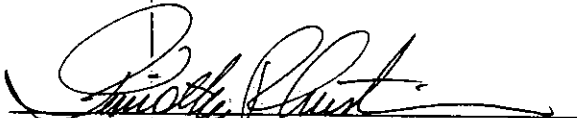
The applicant certifies that the information contained in this request for review is, to the best of his/her knowledge, a complete and accurate statement of the property's condition.

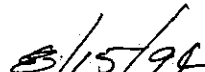
The applicant hereby declares the maintenance of this drainage detention facility shall be performed by the property owner to standards acceptable to the WSWU for continued effective functioning of the facility.

If any construction is performed on this property which would increase the amount of impervious area for this parcel, the applicant agrees to notify the Wichita Storm Water Utility Office with the revised amount of impervious area (Sq. Ft.).


Applicant's Signature


Date


Preparer's Signature


Date

Name: The Center for the Improvement of Human Functioning International, Inc.

Mailing Address: 3100 N. Hillside Avenue

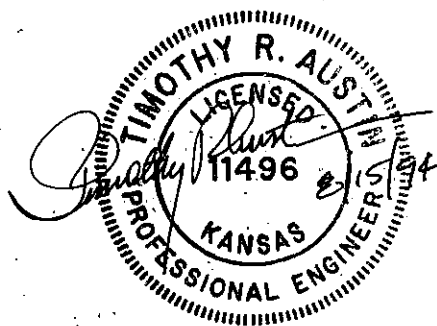
City: Wichita, KS 67219

Phone: 316/683-3100

HYDROLOGIC STUDY FOR
**CHISHOLM CREEK CENTER
ADDITION**

WICHITA, KANSAS

AUGUST 1994



HYDROLOGIC STUDY FOR
**CHISHOLM CREEK CENTER
ADDITION**

WICHITA, KANSAS

AUGUST 1994

Baughman Company, P.A.

PREFACE

This report documents the hydrological analysis of the Chisholm Creek Center Addition; also known as *Olive W. Garvey Center for the Improvement of Human Functioning, Inc.* The study was conducted for the City of Wichita, Parks Department, who is interested in the storm water runoff and retention of storm water on the property because of the storm water fees being assessed on the property known as Chisholm Creek Center Addition. Chisholm Creek Center Addition is located in the City of Wichita, Sedgwick County, Kansas. The property is bordered on the west by Hillside Road. Residential subdivisions border the property to the south.

Soil Conservation Service (SCS) maps, aerial photographs, topographic surveys, and the United States Geological Survey (USGS) topographic maps were used to establish the parameters in determining the hydrologic model. The parameters were then used in the HEC-1 model to determine the peak flows and the maximum water surface elevations for the 100-year, 24-hour storm frequency. Table 1 shows the peak inflows and outflows, and water surface elevation for each of the four sub-basins. Sub-basins 4 and 5, as shown on the Work Map in Appendix A, are combined to form the sub-basin called "South of Creek".

<u>Sub-basin</u>	<u>Peak Inflow (cfs)</u>	<u>Peak Outflow (cfs)</u>	<u>Max. Water Elev.</u>
NW Corner	5	5	
NW Retention	70	0	142.00
Facility Retention	27	0	148.00
South of Creek	58	58	

Table 1. Summary of Hydrologic Analysis

Outflow from the property occurs at two locations. The main discharge point for runoff from the subject property is the East Fork Chisholm Creek, which flows through the center of the property and leaves the property at the Southwest corner of the property. Outflow also occurs at the Northwest corner of the subject property through a double 5' x 5' RCBC crossing Hillside Road. Off-site flows entering the subject property were not considered in the analysis for two reasons. One, the property is charged for storm water fees based only

on the runoff from the property and therefore, off-site flows need not be considered in that respect. The second reason is none of the off-site flow is retained within the subject property. Since no off-site flow is retained on the subject property, there is no need to examine the possibility of credit based on off-site flow retention.

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INTRODUCTION

The hydrologic study of the Chisholm Creek Center Addition was performed in order to establish inflow and outflow quantities of storm water generated by the subject property, and methods of release of the runoff. The study will be evaluated by the Storm Water Management Branch of the City of Wichita, Kansas in order to determine eligibility for the Storm Water Management Incentive Program and percentage, if any, of credit available to the subject property. This program offers fee reductions for properties with detention facilities, retention facilities, or other improvements exceeding the City's requirements, to reflect the benefits or savings to the public in reduced capital costs related to stormwater management.

INVESTIGATION and ANALYSIS

The HEC-1 computer model was used to analyze the hydrologic response of the Chisholm Creek Center Addition 100-year, 24-hour storm frequency. The 100-year, 24-hour storm frequency was used to show that the facilities studied in this report can support the most extreme hypothetical storm used in design. The analysis included the determination of the sub-basin areas, Soil Conservation Service (SCS) soil types, and water surface elevation versus both area and storage volume.

The analysis began with a topographic map prepared from an aerial photograph taken in July, 1994. The storage volumes and surface areas of the ponds were determined for the subject property from the topographic work map. The map was drawn to a scale of 1 inch equal 100 feet, with a contour interval of 2 feet. Unfortunately, this contour interval did not permit the depth/storage relationship at the preferred 0.5' intervals to be established. Instead, 2' intervals are used to obtain the depth/storage relationship. This interval is sufficient for the areas that were studied. The topographic map used in this analysis can be found in Appendix A.

The surface area was used in the computer model to determine the amount of existing storage available in the two retention areas. The surface was determined at 2 foot intervals. The resulting values are shown in Table 2. Although Table 2 indicates surface elevations exceeding 148.0 for the NW Retention Area, water will begin to flow from the retention facility at lesser

elevations. Elevation 153.0 for the Facility Retention Area was estimated due to the 2' contour interval and the number of outflow areas from that facility.

<u>NW</u> <u>Elevation</u> <u>(City Datum)</u>	<u>Retention</u> <u>Surface Area</u> <u>(sq. ft.)</u>	<u>Facility</u> <u>Elevation</u> <u>(NGVD)</u>	<u>Retention</u> <u>Surface Area</u> <u>(sq. ft.)</u>
142.0	6670.7	148.0	58869.1
144.0	40351.2	150.0	106259.7
146.0	89547.2	152.0	143861.5
148.0	164922.5	153.0	150000.0*

* Estimated for analysis purposes

Table 2. Data from Topographic Map

For the purpose of this analysis, flow off-site was assumed to be restricted to East Fork Chisholm Creek and the box culvert at the NW corner of the subject property. Some flows along the property lines may exit the property as overland flow, but will eventually re-enter the system downstream. The areas in Table 2 do include the existing pond water surface areas. Numerous ponds were present in the Facility Retention Area when the aerial photographs were taken. Pool water levels were as low as 141.0 in the NW retention pond and as high as 151.9 in one of the smaller retention ponds in the Facility Retention Area.

Outflow from the property occurs at two locations. The main discharge point for runoff from the subject property is the East Fork Chisholm Creek, which flows through the center of the property and leaves the property at the Southwest corner of the property. Outflow also occurs at the Northwest corner of the subject property through a double 5' x 5' RCBC crossing Hillside Road. Off-site flows entering the subject property were not considered in the analysis for two reasons. One, the property is charged for storm water fees based only on the runoff from the property and therefore, off-site flows need not be considered in that respect. The second reason is none of the off-site flow is retained within the subject property. Since no off-site flow is retained on the subject property, there is no need to examine the possibility of credit based on off-site flow retention.

The sub-basins were delineated on the topographic work map with a contour interval of 2 feet. The subject property is located in parts of Section

35, T26S, R1E and Section 2, T27S, R1E. Total area of the site was estimated to be 91.62 acres. The sub-basin parameters are shown in Table 3.

Sub-Basin	Area (sq. ft.)	Length (mi)	L _{CENTROID} (mi)	Slope (ft/mi)	% Urban
1	335,872	0.4356	0.0568	36.7	0
2	912,744	0.3320	0.1420	40.4	0
3	588,998	0.2367	0.0758	88.7	60
4	1,427,028	0.0947	0.0473	63.4	0
5	726,246	0.3977	0.2462	22.6	0

Table 3. Sub-Basin Parameters

The SCS soils maps for Sedgwick County were consulted to determine the soil types existing in the watershed. The subject property is primarily agricultural land and open spaces. The soil types and the corresponding hydrologic classifications are shown in Table 4. A copy of the SCS soils maps is located in Appendix C. A composite SCS Curve Number was determined for each sub-basin and is shown in Table 5.

Soil Description	Hydrologic Type
Elandco, E _c	B
Tabler, T _a	D

Table 4. Hydrologic Classification of Soils in Watershed

Sub-basin	Description	Soil Type	Runoff Curve Number
NW Corner	Woods or Forest, Fair	D	79
NW Retention	Open Spaces, Good	D	80
Facility Retention	Open Spaces, Good	D	80
South of Creek	Fallow, Straight Row	D	94

Table 5. Runoff Curve Numbers for Sub-basins

The Espey Method for estimating the peaking coefficients and lag times for the Snyder Unit Hydrograph was used based on the relatively small sub-basin areas and the relatively short basin lengths.

The precipitation data is taken from the Precipitation Maps in Technical Paper No. 40 for the 100-year, 24 hour frequency event, authorized by the United States Weather Bureau and the National Weather Service Hydro-Meteorological Report No. 35. The precipitation used is shown in Table 6.

Time	5 min	15 min	60 min	2 hr	3 hr	6 hr	12 hr	24 hr
Precip (in.)	0.87	1.83	3.70	4.60	5.10	5.90	6.80	7.37

Table 6. 100-year, 24 Hour Frequency Precipitation Data

Outflow from the retention ponds to obtain the depth/outflow relationship was accomplished using Haestad Method's FlowMaster hydraulic flow computer model for triangular shapes for the NW retention pond and trapezoidal shapes for the Facility Retention Area. These shapes approximate the existing overflow conditions at these locations. The data can be found in Appendix D.

7.37 inches
 x 588,998 sf

 8.30 ac-ft. if 100% is runoff

area of Ret Pond
 600'
 x 200'

 120,000 sf.
 2.75 acres

3.0 ft rise in elev.
 147.4 + 3.0 = 150.4
 of flood level

SUMMARY

The study was limited to the property known as Chisholm Creek Center Addition. Any off-site flows entering the property were not considered since they pass through the subject property and did not enter any of the retention facilities on the property. The HEC-1 model considered each retention area as a sub-basin and the outlet areas as separate sub-basins. The hydraulically remote area totals approximately thirty-eight percent (38%) of the total property area. All of the impervious area on the subject property is included in the 38% mentioned previously. A summary of the peak inflow, peak outflow, and maximum water surface elevation is shown in Table 7.

<u>Sub-basin</u>	<u>Peak Inflow (cfs)</u>	<u>Peak Outflow (cfs)</u>	<u>Max. Water Elev.</u>
NW Corner	5	5	
NW Retention	70	0	142.00
Facility Retention	27	0	148.00
South of Creek	58	58	

Table 7. Summary of Hydrologic Analysis

Input and output generated by HEC-1 can be found in Appendix C.

* The results of the study show that all of the runoff generated by the 100-year, 24-hour storm frequency in the developed area is retained on the property. The retention ponds reduce the total flow off-site from 140 cfs pre-developed to 62 cfs post-developed. Also, the water retained is being released very slowly through percolation which helps to recharge the groundwater supplies and remove potential pollutants in the storm water runoff.

APPENDIX A

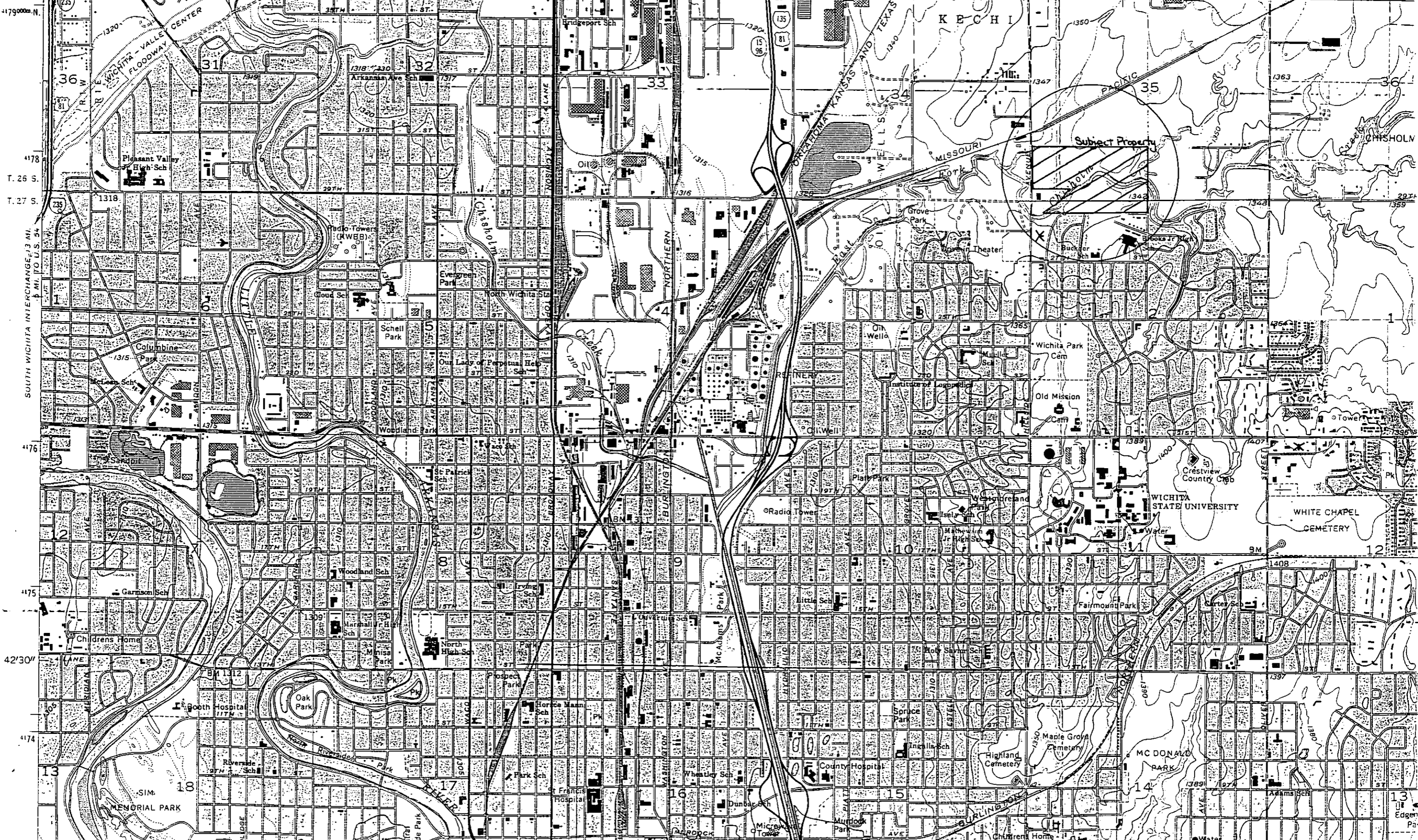
APPENDIX B

6559 IV SE
(MAIZE)

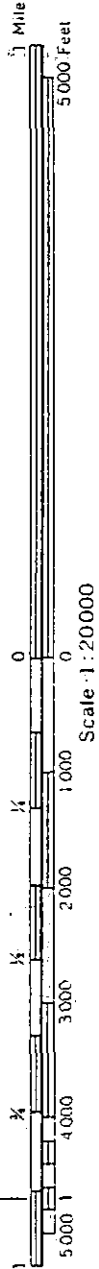
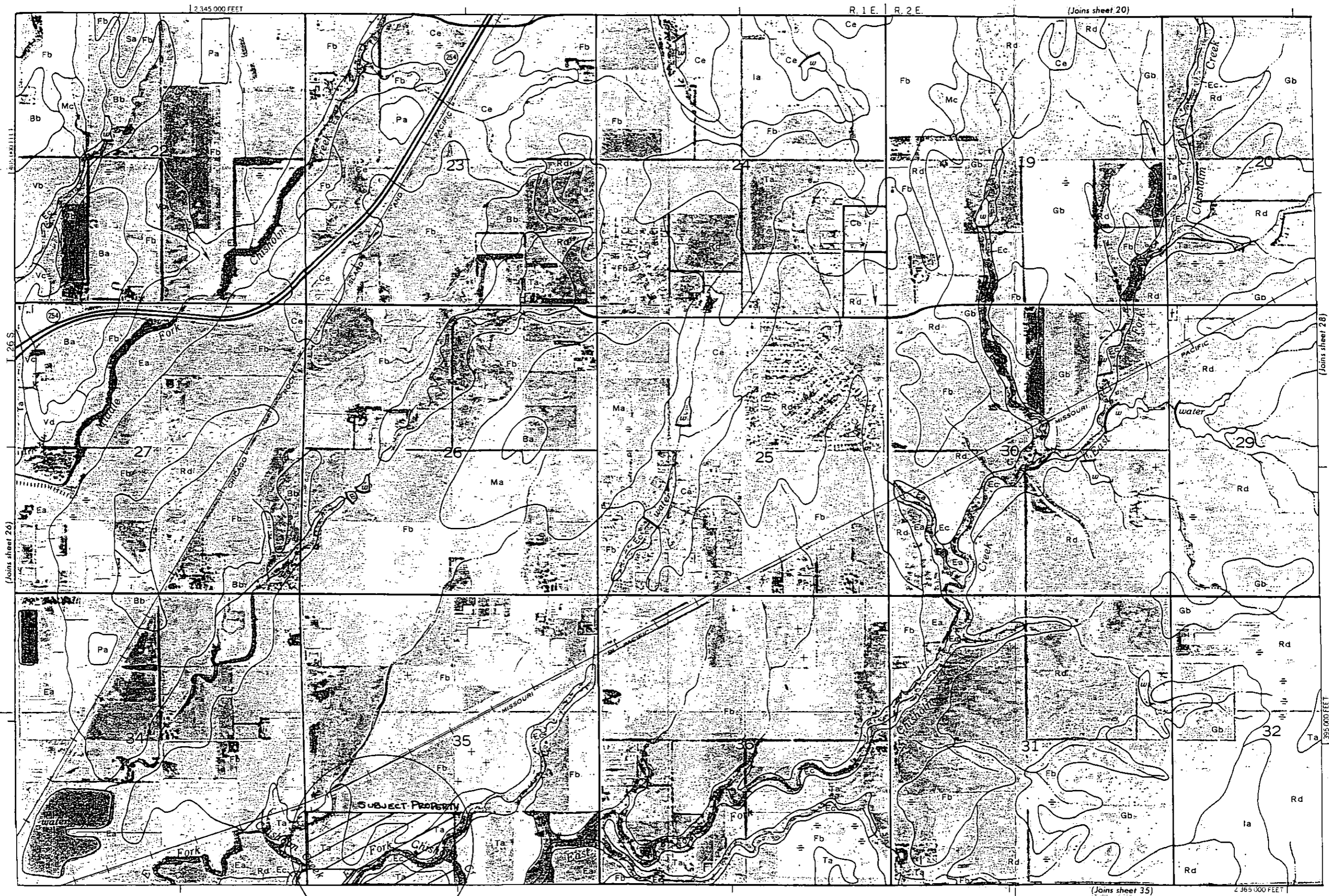
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF KANSAS

97°22'30" 37°45' 1790000 N. HUTCHINSON 51 MI. MAIZE (VIA KANS. 96) 8 MI. 9450000 E. NEWTON 21 MI. WICHITA HEIGHTS 2.2 MI. 20' 647 0.9 MI. TO INTERSTATE 235 NEWTON 22 MI. 6559 IV SE (VALLEY CENTER) 649 17'30" 2 350 000 FEET KECHI 3.2 MI. 1952



APPENDIX C

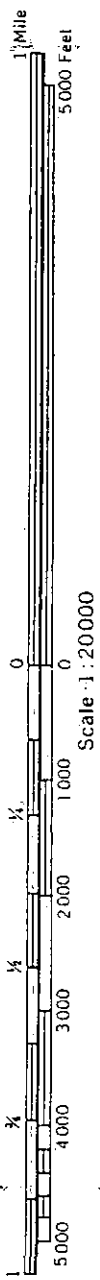
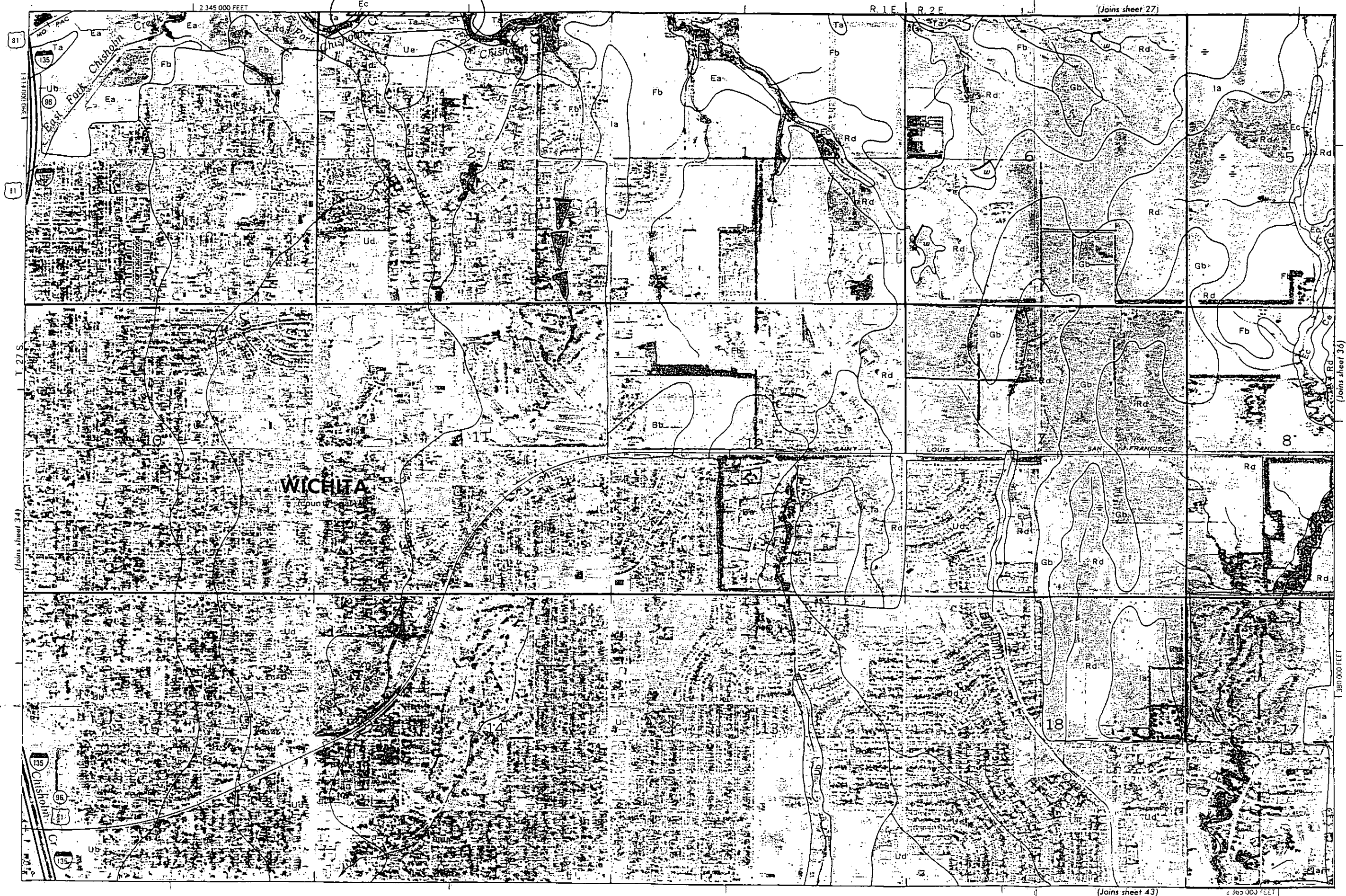


2,345,000 FEET
 (Joins sheet 26)
 (Joins sheet 28)
 (Joins sheet 35)

R. 1 E. R. 2 E. (Joins sheet 20)

2,365,000 FEET

SUBJECT PROPERTY



APPENDIX D

Triangular Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: CHISHOLM CREEK CTR

Description: NW RETENTION POND

Solve For Discharge

Given Constant Data;

Z-Left..... 17.00
Z-Right..... 17.00
Mannings 'n'..... 0.400
Channel Slope..... 0.0100

Variable Input Data	Minimum	Maximum	Increment By
=====	=====	=====	=====
Channel Depth	0.50	2.00	0.50

Z-Left (H:V)	Z-Right (H:V)	Mannings 'n'	Channel Slope ft/ft	VARIABLE COMPUTED COMPUTED		
				Channel Depth ft	Channel Discharge (cfs)	Channel Velocity (fps)
17.00	17.00	0.400	0.0100	0.50	0.63	0.15
17.00	17.00	0.400	0.0100	1.00	3.97	0.23
17.00	17.00	0.400	0.0100	1.50	11.72	0.31
17.00	17.00	0.400	0.0100	2.00	25.23	0.37

Trapezoidal Channel Analysis & Design
 Open Channel - Uniform flow

Worksheet Name: CHISHOLM CREEK CTR

Description: FACILITY RETENTION PONDS

Solve For Discharge

Given Constant Data;

Bottom Width..... 40.00
 Z-Left..... 100.00
 Z-Right..... 100.00
 Mannings 'n'..... 0.400
 Channel Slope..... 0.0100

Variable Input Data	Minimum	Maximum	Increment By
=====	=====	=====	=====
Channel Depth	0.50	2.00	0.50

VARIABLE COMPUTED COMPUTED

Bottom Width ft	Z-Left (H:V)	Z-Right (H:V)	Mannings 'n'	Channel Slope ft/ft	Channel Depth ft	Channel Discharge cfs	Channel Velocity fps
40.00	100.00	100.00	0.400	0.0100	0.50	7.84	0.17
40.00	100.00	100.00	0.400	0.0100	1.00	36.31	0.26
40.00	100.00	100.00	0.400	0.0100	1.50	94.12	0.33
40.00	100.00	100.00	0.400	0.0100	2.00	188.96	0.39

APPENDIX E

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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   MAY 1991 *
*   VERSION 4.0.1E *
*   Lahey F77L-EM/32 version 5.01 *
*   Dodson & Associates, Inc. *
* RUN DATE 08/12/94 TIME 13:26:42 *
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
*****

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X   X   XXXXXXX   XXXXX   X
X   X   X   X   X   XX
X   X   X   X   X   X
XXXXXXX   XXXX   X   XXXXX   X
X   X   X   X   X   X
X   X   X   X   X   X
X   X   XXXXXXX   XXXXX   XXX

```

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

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


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*****
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   MAY 1991 *
*   VERSION 4.0.1E *
*   Lahey F77L-EM/32 version 5.01 *
*   Dodson & Associates, Inc. *
* RUN DATE 08/12/94 TIME 13:26:42 *
*****

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*****
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
*****

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CHISHOLM CREEK CENTER HYDROLOGY STUDY
 BAUGHMAN CO., P.A. JOHN D. SCHMIT
 SUBMITTED: AUGUST 12, 1994

```

5 IO  OUTPUT CONTROL VARIABLES
      IPRNT      3  PRINT CONTROL
      IPLOT      0  PLOT CONTROL
      QSCAL      0. HYDROGRAPH PLOT SCALE

```

```

IT   HYDROGRAPH TIME DATA
      NMIN      15  MINUTES IN COMPUTATION INTERVAL
      IDATE     1JAN94  STARTING DATE
      ITIME     0000  STARTING TIME
      NQ        300  NUMBER OF HYDROGRAPH ORDINATES
      NDDATE    4JAN94  ENDING DATE
      NDTIME    0245  ENDING TIME
      ICENT     19  CENTURY MARK

      COMPUTATION INTERVAL  0.25 HOURS
      TOTAL TIME BASE      74.75 HOURS

```

```

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

```

 * SUB2 *
 *

SUB-BASIN DRAINING TO NW RETENTION POND

8 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

SUBBASIN RUNOFF DATA

9 BA SUBBASIN CHARACTERISTICS
 TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

10 PH DEPTHS FOR 100-PERCENT HYPOTHETICAL STORM
 HYDRO-35 TP-40 TP-49
 5-MIN 15-MIN 60-MIN 2-HR 3-HR 6-HR 12-HR 24-HR 2-DAY 4-DAY 7-DAY 10-DAY
 10.87 1.83 3.70 4.60 5.10 5.90 6.80 7.37 0.00 0.00 0.00 0.00

STORM AREA = 0.03

11 LS SCS LOSS RATE
 STRTL 0.50 INITIAL ABSTRACTION
 CRVNBR 80.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

12 US SNYDER UNITGRAPH
 TP 0.54 LAG
 CP 48.10 PEAKING COEFFICIENT

SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

UNIT HYDROGRAPH PARAMETERS
 CLARK TC= 0.94 HR, R= 0.13 HR
 SNYDER TP= 0.53 HR, CP= 0.78

UNIT HYDROGRAPH
 5 END-OF-PERIOD ORDINATES

8. 23. 29. 19. 5.
 *** **

HYDROGRAPH AT STATION SUB2

TOTAL RAINFALL = 7.37, TOTAL LOSS = 2.33, TOTAL EXCESS = 5.04

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
70.	12.75	16.	4.	1.	1.
		(INCHES) 4.457	5.037	5.037	5.037
		(AC-FT) 8.	9.	9.	9.

CUMULATIVE AREA = 0.03 SQ MI

13 KK

* RESV1 *

1C

NW RETENTION POND

15 KO

OUTPUT CONTROL VARIABLES

IPRNT 3 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE
IPNCH 0 PUNCH COMPUTED HYDROGRAPH
IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
TIMINT 0.250 TIME INTERVAL IN HOURS

HYDROGRAPH ROUTING DATA

16 RS

STORAGE ROUTING

NSTPS 1 NUMBER OF SUBREACHES
ITYP ELEV TYPE OF INITIAL CONDITION
RSVRIC 141.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

17 SA

AREA 6670.7 40351.2 89547.2 164922.5

18 SE

ELEVATION 142.00 144.00 146.00 148.00

19 SQ

DISCHARGE 0. 0. 0. 1. 2. 4. 6. 10. 14. 19.
25. 33.

21 SE

ELEVATION 147.00 147.20 147.40 147.60 147.80 148.00 148.20 148.40 148.60 148.80
149.00 149.20

COMPUTED STORAGE-ELEVATION DATA

STORAGE 0.00 42285.55 168958.52 419621.72
ELEVATION 142.00 144.00 146.00 148.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE 0.00 42285.55 168958.52 275446.28 301083.25 328273.34 357064.50 387498.03 419621.72 453481.25
OUTFLOW 0.00 0.00 0.00 0.00 0.05 0.35 1.02 2.19 3.97 6.46
ELEVATION 142.00 144.00 146.00 147.00 147.20 147.40 147.60 147.80 148.00 148.20

STORAGE 489122.31 526593.50 565934.75 607194.56 650418.63
OUTFLOW 9.75 13.92 19.05 25.23 32.53
ELEVATION 148.40 148.60 148.80 149.00 149.20

HYDROGRAPH AT STATION RESV1

PEAK FLOW TIME MAXIMUM AVERAGE FLOW
+ (CFS) (HR) 6-HR 24-HR 72-HR 74.75-HR
+ 0. 0.25 (CFS) 0. 0. 0. 0.
(INCHES) 0.000 0.000 0.000 0.000
(AC-FT) 0. 0. 0. 0.

PEAK STORAGE TIME MAXIMUM AVERAGE STORAGE
+ (AC-FT) (HR) 6-HR 24-HR 72-HR 74.75-HR
+ 9. 25.00 9. 9. 7. 7.

PEAK STAGE TIME MAXIMUM AVERAGE STAGE
+ (FEET) (HR) 6-HR 24-HR 72-HR 74.75-HR
+ 142.00 21.25 142.00 142.00 142.00 142.00

CUMULATIVE AREA = 0.03 SQ MI

23 KK

*
* ROUT1 *
*

2C

ROUTE RESV1 THROUGH SUB1

25 KO

OUTPUT CONTROL VARIABLES

IPRNT 3 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE
IPNCH 0 PUNCH COMPUTED HYDROGRAPH
IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
TIMINT 0.250 TIME INTERVAL IN HOURS

HYDROGRAPH ROUTING DATA

26 RM

MUSKINGUM ROUTING

NSTPS 1 NUMBER OF SUBREACHES
AMSKK 0.60 MUSKINGUM K
X 0.40 MUSKINGUM X

***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH ROUT1.
REDUCE NSTPS OR DECREASE YOUR COMPUTATION INTERVAL (FIRST FIELD OF THE IT RECORD).

*** **

HYDROGRAPH AT STATION ROUT1

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
0.	0.25	0.	0.	0.	0.
(INCHES)		0.000	0.000	0.000	0.000
(AC-FT)		0.	0.	0.	0.

CUMULATIVE AREA = 0.03 SQ MI

 * *
 * SUB1 *
 * *

27 KK

SUB-BASIN IN EXTREME NW CORNER OF SUBJECT PROPERTY

29 KO

OUTPUT CONTROL VARIABLES

IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

SUBBASIN RUNOFF DATA

30 BA

SUBBASIN CHARACTERISTICS

TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

31 PH

DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40					TP-49			
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.46	0.95	1.70	2.05	2.20	2.55	3.00	3.83	0.00	0.00	0.00	0.00

STORM AREA = 0.01

32 LS

SCS LOSS RATE

STRTL 0.53 INITIAL ABSTRACTION
 CRVNBR 79.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

33 US

SNYDER UNITGRAPH

TP 1.23 LAG
 CP 79.10 PEAKING COEFFICIENT

SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

UNIT HYDROGRAPH PARAMETERS

CLARK TC= 2.22 HR, R= 0.13 HR
 SNYDER TP= 1.24 HR, CP= 0.78

UNIT HYDROGRAPH
 10 END-OF-PERIOD ORDINATES

1.	2.	3.	4.	5.	5.	4.	3.	2.	1.
***	***	***	***	***	***	***	***	***	***

HYDROGRAPH AT STATION SUB1

TOTAL RAINFALL = 3.83, TOTAL LOSS = 2.00, TOTAL EXCESS = 1.83

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
5.	13.50	2.	1.	0.	0.
		(INCHES) 1.391	1.826	1.826	1.826
		(AC-FT) 1.	1.	1.	1.
CUMULATIVE AREA =		0.01 SQ MI			

34 KK

* COMB1 *

3R

COMBINE ROUT1 AND SUB1

36 KO

OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE
IPNCH	0	PUNCH COMPUTED HYDROGRAPH
IOUT	22	SAVE HYDROGRAPH ON THIS UNIT
ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	300	LAST ORDINATE PUNCHED OR SAVED
TIMINT	0.250	TIME INTERVAL IN HOURS

37 HC

HYDROGRAPH COMBINATION

ICOMP	2	NUMBER OF HYDROGRAPHS TO COMBINE
-------	---	----------------------------------

HYDROGRAPH AT STATION COMB1

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
5.	13.50	2.	1.	0.	0.
		0.374	0.490	0.490	0.490
		1.	1.	1.	1.

CUMULATIVE AREA = 0.04 SQ MI

38 KK

*
* SUB3 *
*

SUB-BASIN WHICH INCLUDES FACILITY AND FACILITY PONDS

40 KO

OUTPUT CONTROL VARIABLES

IPRNT 3 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0 HYDROGRAPH PLOT SCALE
IPNCH 0 PUNCH COMPUTED HYDROGRAPH
IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
TIMINT 0.250 TIME INTERVAL IN HOURS

SUBBASIN RUNOFF DATA

41 BA

SUBBASIN CHARACTERISTICS

TAREA 0.02 SUBBASIN AREA

PRECIPITATION DATA

42 PH

DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35 TP-40 TP-49
5-MIN 15-MIN 60-MIN 2-HR 3-HR 6-HR 12-HR 24-HR 2-DAY 4-DAY 7-DAY 10-DAY
0.46 0.95 1.70 2.05 2.20 2.55 3.00 3.83 0.00 0.00 0.00 0.00

STORM AREA = 0.02

43 LS

SCS LOSS RATE

STRTL 0.50 INITIAL ABSTRACTION
CRVNBR 80.00 CURVE NUMBER
RTIMP 60.00 PERCENT IMPERVIOUS AREA

44 US

SNYDER UNITGRAPH

TP 0.23 LAG
CP 33.10 PEAKING COEFFICIENT

SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

UNIT HYDROGRAPH PARAMETERS

CLARK TC= 0.34 HR, R= 0.13 HR
SNYDER TP= 0.23 HR, CP= 0.56

UNIT HYDROGRAPH

3 END-OF-PERIOD ORDINATES

22. 27. 5.

*** **

HYDROGRAPH AT STATION SUB3

TOTAL RAINFALL = 3.83, TOTAL LOSS = 0.77, TOTAL EXCESS = 3.06

PEAK FLOW TIME MAXIMUM AVERAGE FLOW
(CFS) (HR) 6-HR 24-HR 72-HR 74.75-HR

+ (CFS) (HR)
+ 27. 12.50 (CFS)
(INCHES) 5. 2. 1. 1.
(AC-FT) 2.097 3.052 3.059 3.059
2. 3. 3. 3.

CUMULATIVE AREA = 0.02 SQ MI

 * *
 45 KK * RESV2 * 4C
 * *

FACILITY RETENTION PONDS

47 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

HYDROGRAPH ROUTING DATA

48 RS STORAGE ROUTING
 NSTPS 1 NUMBER OF SUBREACHES
 ITYP ELEV TYPE OF INITIAL CONDITION
 RSVRIC 147.40 INITIAL CONDITION
 X 0.00 WORKING R AND D COEFFICIENT

49 SA	AREA	58869.0	58869.1	106259.7	143861.5	150000.0					
50 SE	ELEVATION	148.00	150.00	152.00	154.00	0.00					
51 SQ	DISCHARGE	0.	1.	5.	12.	22.	36.	55.	80.	110.	146.
		189.	239.								
53 SE	ELEVATION	153.00	153.20	153.40	153.60	153.80	154.00	154.20	154.40	154.60	154.80
		155.00	155.20								

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	117738.10	280551.44	529725.13	0.00
ELEVATION	148.00	150.00	152.00	154.00	0.00

COMPUTED STORAGE-OUTFLOW-ELEVATION DATA

STORAGE	0.00	117738.10	280551.44	395737.84	420985.34	446996.25	473783.97	501355.78	529725.13	558496.19
OUTFLOW	0.00	0.00	0.00	0.00	1.26	4.93	11.59	21.86	36.31	55.46
ELEVATION	148.00	150.00	152.00	153.00	153.20	153.40	153.60	153.80	154.00	154.20
STORAGE	587265.69	616035.81	644802.13	673566.88	702330.06					
OUTFLOW	79.83	109.90	146.13	188.96	238.84					
ELEVATION	154.40	154.60	154.80	155.00	155.20					

*** **

HYDROGRAPH AT STATION RESV2

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	74.75-HR
+	(CFS)	(HR)				
+	0.	0.25				
		(CFS)	0.	0.	0.	0.
		(INCHES)	0.000	0.000	0.000	0.000
		(AC-FT.)	0.	0.	0.	0.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
			6-HR	24-HR	72-HR	74.75-HR
+	(AC-FT)	(HR)				
+	3.	24.50	3.	3.	3.	3.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
			6-HR	24-HR	72-HR	74.75-HR
+	(FEET)	(HR)				
+	148.00	20.00	148.00	148.00	148.00	148.00

CUMULATIVE AREA = 0.02 SQ MI

55 KK

* ROUT2 *
* *

5C

ROUTE RESV2 THROUGH SUB4

57 KO

OUTPUT CONTROL VARIABLES

IPRNT 3 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE
IPNCH 0 PUNCH COMPUTED HYDROGRAPH
IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
TIMINT 0.250 TIME INTERVAL IN HOURS

HYDROGRAPH ROUTING DATA

58 RM

MUSKINGUM ROUTING

NSTPS 1 NUMBER OF SUBREACHES
AMSKK 0.60 MUSKINGUM K
X 0.40 MUSKINGUM X

***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH ROUT2.
REDUCE NSTPS OR DECREASE YOUR COMPUTATION INTERVAL (FIRST FIELD OF THE IT RECORD).

*** **

HYDROGRAPH AT STATION ROUT2

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW				
		6-HR	24-HR	72-HR	74.75-HR	
0.	0.25	0.	0.	0.	0.	
		(INCHES)	0.000	0.000	0.000	0.000
		(AC-FT)	0.	0.	0.	0.

CUMULATIVE AREA = 0.02 SQ MI

 * SUB4 *
 *

SUB-BASIN SOUTH OF EAST FORK CHISHOLM CREEK

61 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

SUBBASIN RUNOFF DATA

62 BA SUBBASIN CHARACTERISTICS
 TAREA 0.05 SUBBASIN AREA

PRECIPITATION DATA

63 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM
 HYDRO-35 TP-40 TP-49
 5-MIN 15-MIN 60-MIN 2-HR 3-HR 6-HR 12-HR 24-HR 2-DAY 4-DAY 7-DAY 10-DAY
 0.46 0.95 1.70 2.05 2.20 2.55 3.00 3.83 0.00 0.00 0.00 0.00
 STORM AREA = 0.05

64 LS SCS LOSS RATE
 STRTL 0.13 INITIAL ABSTRACTION
 CRVNBR 94.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

65 US SNYDER UNITGRAPH
 TP 0.80 LAG
 CP 54.80 PEAKING COEFFICIENT

SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

 UNIT HYDROGRAPH PARAMETERS
 CLARK TC= 1.45 HR, R= 0.13 HR
 SNYDER TP= 0.81 HR, CP= 0.78

UNIT HYDROGRAPH
 7 END-OF-PERIOD ORDINATES
 7. 19. 28. 31. 27. 16. 5.
 *** **

HYDROGRAPH AT STATION SUB4

TOTAL RAINFALL = 3.83, TOTAL LOSS = 0.67, TOTAL EXCESS = 3.16

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
47.	13.00	13.	4.	1.	1.
(INCHES)		2.315	3.158	3.158	3.158
(AC-FT)		6.	9.	9.	9.

CUMULATIVE AREA = 0.05 SQ MI

 * SUB5 *
 * *

SUB-BASIN SOUTH OF SUB4 ALONG SOUTH PROPERTY LINE

68 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

SUBBASIN RUNOFF DATA

69 BA SUBBASIN CHARACTERISTICS
 TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

70 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

HYDRO-35			TP-40				TP-49				
5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.46	0.95	1.70	2.05	2.20	2.55	3.00	3.83	0.00	0.00	0.00	0.00

STORM AREA = 0.03

71 LS SCS LOSS RATE
 STRTL 0.13 INITIAL ABSTRACTION
 CRVNR 94.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

72 US SNYDER UNITGRAPH
 TP 1.76 LAG
 CP 105.20 PEAKING COEFFICIENT

SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

UNIT HYDROGRAPH PARAMETERS
 CLARK TC= 3.19 HR, R= 0.13 HR
 SNYDER TP= 1.75 HR, CP= 0.78

UNIT HYDROGRAPH
 14 END-OF-PERIOD ORDINATES

1.	3.	4.	5.	6.	7.	8.	7.	6.
5.	4.	2.	1.					

*** **

HYDROGRAPH AT STATION SUB5

TOTAL RAINFALL = 3.83, TOTAL LOSS = 0.67, TOTAL EXCESS = 3.16

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
14.	13.75	6.	2.	1.	1.
		(INCHES) 2.304	3.157	3.158	3.158
		(AC-FT) 3.	4.	4.	4.

CUMULATIVE AREA = 0.03 SQ MI

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*****
*           *
73 KK      * COMB2 *           6R
*           *
*****

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74 KO      OUTPUT CONTROL VARIABLES
          IPRNT      3 PRINT CONTROL
          IPLOT      0 PLOT CONTROL
          QSCAL     0. HYDROGRAPH PLOT SCALE
          IPNCH     0 PUNCH COMPUTED HYDROGRAPH
          IOUT      22 SAVE HYDROGRAPH ON THIS UNIT
          ISAV1     1 FIRST ORDINATE PUNCHED OR SAVED
          ISAV2     300 LAST ORDINATE PUNCHED OR SAVED
          TIMINT    0.250 TIME INTERVAL IN HOURS

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75 HC      HYDROGRAPH COMBINATION
          ICOMP     3 NUMBER OF HYDROGRAPHS TO COMBINE

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

HYDROGRAPH AT STATION COMB2

PEAK FLOW (CFS)	TIME (HR)	(CFS)	MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	74.75-HR
58.	13.00	19.	7.	2.	2.	
		(INCHES)	1.813	2.480	2.481	2.481
		(AC-FT)	10.	13.	13.	13.

CUMULATIVE AREA = 0.10 SQ MI

 *
 * COMB3 *
 *

76 KK

COMB2

COMBINE ALL FLOW FROM SUBJECT PROPERTY

78 KO

OUTPUT CONTROL VARIABLES

IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

79 HC

HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

HYDROGRAPH AT STATION COMB3

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
62.	13.00	21.	7.	2.	2.
		(INCHES) 1.361	1.859	1.859	1.859
		(AC-FT) 10.	14.	14.	14.
CUMULATIVE AREA =		0.14 SQ MI			

 * *
 * COMB2 *
 * *

80 KK COMB3

81 KO OUTPUT CONTROL VARIABLES

IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

HYDROGRAPH ROUTING DATA

82 RN NO ROUTING

HYDROGRAPH AT STATION COMB2

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
62.	13.00	21.	7.	2.	2.
(INCHES)		1.361	1.859	1.859	1.859
(AC-FT)		10.	14.	14.	14.
CUMULATIVE AREA =		0.14 SQ MI			

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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SUB2	70.	12.75	16.	4.	1.	0.03		
ROUTED TO	RESV1	0.	0.25	0.	0.	0.	0.03	142.00	
ROUTED TO	ROUT1	0.	0.25	0.	0.	0.	0.03		
HYDROGRAPH AT	SUB1	5.	13.50	2.	1.	0.	0.01		
2 COMBINED AT	COMB1	5.	13.50	2.	1.	0.	0.04		
HYDROGRAPH AT	SUB3	27.	12.50	5.	2.	1.	0.02		
ROUTED TO	RESV2	0.	0.25	0.	0.	0.	0.02	148.00	
ROUTED TO	ROUT2	0.	0.25	0.	0.	0.	0.02		
HYDROGRAPH AT	SUB4	47.	13.00	13.	4.	1.	0.05		
HYDROGRAPH AT	SUB5	14.	13.75	6.	2.	1.	0.03		
3 COMBINED AT	COMB2	58.	13.00	19.	7.	2.	0.10		
2 COMBINED AT	COMB3	62.	13.00	21.	7.	2.	0.14		
ROUTED TO	COMB2	62.	13.00	21.	7.	2.	0.14		

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



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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*   MAY 1991 *
*   VERSION 4.0.1E *
*   Lahey F77L-EM/32 version 5.01 *
*   Dodson & Associates, Inc. *
*   RUN DATE 08/12/94 TIME 13:30:22 *
*****

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*****
*
* U.S. ARMY CORPS OF ENGINEERS *
* HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET *
* DAVIS, CALIFORNIA 95616 *
* (916) 551-1748 *
*****

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X   X  XXXXXXXX  XXXXX      X
X   X  X        X   X      XX
X   X  X        X           X
XXXXXXX XXXX   X           XXXXX X
X   X  X        X           X
X   X  X        X   X      X
X   X  XXXXXXXX  XXXXX      XXX

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

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

HEC-1 INPUT

LINE	ID	1	2	3	4	5	6	7	8	9	10
1	ID	CHISHOLM CREEK CENTER HYDROLOGY STUDY									
2	ID	BAUGHMAN CO., P.A. JOHN D. SCHMIT									
3	ID	SUBMITTED: AUGUST 12, 1994									
4	IT	15	1JAN94	0	300						
5	IO	3									
6	KK	SUB2									
7	KM	SUB-BASIN DRAINING TO NW RETENTION POND									
8	KO	0	0	0	0	22					
9	BA	0.0327									
10	PH	100	0	0.87	1.83	3.7	4.6	5.1	5.9	6.8	7.37
11	LS	0	80	0							
12	US	0.535	48.1								
13	KK	RESV1 1C									
14	KM	NW RETENTION POND									
15	KO	0	0	0	0	22					
16	RN	RESV1									
17	KK	ROUT1 2C									
18	KM	ROUTE RESV1 THROUGH SUB1									
19	KO	0	0	0	0	22					
20	RM	1	0.6	0.4							
21	KK	SUB1									
22	KM	SUB-BASIN IN EXTREME NW CORNER OF SUBJECT PROPERTY									
23	KO	0	0	0	0	22					
24	BA	0.012									
25	PH	2	0	0.46	0.95	1.7	2.05	2.2	2.55	3	3.83
26	LS	0	79	0							
27	US	1.233	79.1								
28	KK	COMB1 3R									
29	KM	COMBINE ROUT1 AND SUB1									
30	KO	0	0	0	0	22					
31	HC	2									
32	KK	SUB3									
33	KM	SUB-BASIN WHICH INCLUDES FACILITY AND FACILITY PONDS									
34	KO	0	0	0	0	22					
35	BA	0.0211									
36	PH	2	0	0.46	0.95	1.7	2.05	2.2	2.55	3	3.83
37	LS	0	80	60							
38	US	0.228	33.1								
39	KK	RESV2 4C									
40	KM	FACILITY RETENTION PONDS									
41	KO	0	0	0	0	22					
42	RN	RESV2									


```

*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   MAY 1991
*   VERSION 4.0.1E
*   Lahey F77L-EM/32 version 5.01
*   Dodson & Associates, Inc.
*   RUN DATE 08/12/94 TIME 13:30:22
*****

```

```

*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 551-1748
*****

```

CHISHOLM CREEK CENTER HYDROLOGY STUDY
 BAUGHMAN CO., P.A. JOHN D. SCHMIT
 SUBMITTED: AUGUST 12, 1994

```

5 10 OUTPUT CONTROL VARIABLES
      IPRNT      3 PRINT CONTROL
      IPLOT      0 PLOT CONTROL
      QSCAL      0. HYDROGRAPH PLOT SCALE

IT   HYDROGRAPH TIME DATA
      NMIN      15 MINUTES IN COMPUTATION INTERVAL
      IDATE     1JAN94 STARTING DATE
      ITIME     0000 STARTING TIME
      NQ        300 NUMBER OF HYDROGRAPH ORDINATES
      NDDATE    4JAN94 ENDING DATE
      NDTIME    0245 ENDING TIME
      ICENT     19 CENTURY MARK

      COMPUTATION INTERVAL 0.25 HOURS
      TOTAL TIME BASE     74.75 HOURS

```

```

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

```

6 KK *****
 * *
 * SUB2 *
 * *

SUB-BASIN DRAINING TO NW RETENTION POND

8 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

SUBBASIN RUNOFF DATA

9 BA SUBBASIN CHARACTERISTICS
 TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

10 PH DEPTHS FOR 100-PERCENT HYPOTHETICAL STORM
 HYDRO-35 TP-40 TP-49
 5-MIN 15-MIN 60-MIN 2-HR 3-HR 6-HR 12-HR 24-HR 2-DAY 4-DAY 7-DAY 10-DAY
 0.87 1.83 3.70 4.60 5.10 5.90 6.80 7.37 0.00 0.00 0.00 0.00
 STORM AREA = 0.03

11 LS SCS LOSS RATE
 STRTL 0.50 INITIAL ABSTRACTION
 CRVNBR 80.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

12 US SNYDER UNITGRAPH
 TP 0.54 LAG
 CP 48.10 PEAKING COEFFICIENT

SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

UNIT HYDROGRAPH PARAMETERS
 CLARK TC= 0.94 HR, R= 0.13 HR
 SNYDER TP= 0.53 HR, CP= 0.78

UNIT HYDROGRAPH
 5 END-OF-PERIOD ORDINATES
 8. 23. 29. 19. 5.

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

HYDROGRAPH AT STATION SUB2

TOTAL RAINFALL = 7.37, TOTAL LOSS = 2.33, TOTAL EXCESS = 5.04

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
70.	12.75	16.	4.	1.	1.
		(INCHES) 4.457	5.037	5.037	5.037
		(AC-FT) 8.	9.	9.	9.

CUMULATIVE AREA = 0.03 SQ MI

```

*****
*                               *
13 KK  * RESV1 *                               1C
*                               *
*****

```

NW RETENTION POND

```

15 KO  OUTPUT CONTROL VARIABLES
      IPRNT      3  PRINT CONTROL
      IPLOT      0  PLOT CONTROL
      QSCAL      0. HYDROGRAPH PLOT SCALE
      IPNCH      0  PUNCH COMPUTED HYDROGRAPH
      IOUT       22 SAVE HYDROGRAPH ON THIS UNIT
      ISAV1      1  FIRST ORDINATE PUNCHED OR SAVED
      ISAV2     300 LAST ORDINATE PUNCHED OR SAVED
      TIMINT     0.250 TIME INTERVAL IN HOURS

```

HYDROGRAPH ROUTING DATA

16 RN NO ROUTING

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

HYDROGRAPH AT STATION RESV1

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
70.	12.75	16.	4.	1.	1.
		(INCHES) 4.457	5.037	5.037	5.037
		(AC-FT) 8.	9.	9.	9.

CUMULATIVE AREA = 0.03 SQ MI

```

*****
*          *
17 KK  * ROUT1 *          2C
*          *
*****

```

ROUTE RESV1 THROUGH SUB1

```

19 KO  OUTPUT CONTROL VARIABLES
        IPRNT      3  PRINT CONTROL
        IPLOT      0  PLOT CONTROL
        QSCAL     0.  HYDROGRAPH PLOT SCALE
        IPNCH     0  PUNCH COMPUTED HYDROGRAPH
        IOUT      22  SAVE HYDROGRAPH ON THIS UNIT
        ISAV1     1  FIRST ORDINATE PUNCHED OR SAVED
        ISAV2    300  LAST ORDINATE PUNCHED OR SAVED
        TIMINT    0.250  TIME INTERVAL IN HOURS

```

HYDROGRAPH ROUTING DATA

```

20 RM  MUSKINGUM ROUTING
        NSTPS      1  NUMBER OF SUBREACHES
        AMSKK     0.60  MUSKINGUM K
        X         0.40  MUSKINGUM X

```

***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH ROUT1.
REDUCE NSTPS OR DECREASE YOUR COMPUTATION INTERVAL (FIRST FIELD OF THE IT RECORD).

*** **

HYDROGRAPH AT STATION ROUT1

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW				
		6-HR	24-HR	72-HR	74.75-HR	
61.	13.25	16.	4.	1.	1.	
		(INCHES)	4.453	5.037	5.037	5.037
		(AC-FT)	8.	9.	9.	9.

CUMULATIVE AREA = 0.03 SQ MI

21 KK *****
 * *
 * SUB1 *
 * *

SUB-BASIN IN EXTREME NW CORNER OF SUBJECT PROPERTY

23 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

SUBBASIN RUNOFF DATA

24 BA SUBBASIN CHARACTERISTICS
 TAREA 0.01 SUBBASIN AREA

PRECIPITATION DATA

25 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM
 HYDRO-35 TP-40 TP-49
 5-MIN 15-MIN 60-MIN 2-HR 3-HR 6-HR 12-HR 24-HR 2-DAY 4-DAY 7-DAY 10-DAY
 0.46 0.95 1.70 2.05 2.20 2.55 3.00 3.83 0.00 0.00 0.00 0.00
 STORM AREA = 0.01

26 LS SCS LOSS RATE
 STRTL 0.53 INITIAL ABSTRACTION
 CRVNBR 79.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

27 US SNYDER UNITGRAPH
 TP 1.23 LAG
 CP 79.10 PEAKING COEFFICIENT

SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

UNIT HYDROGRAPH PARAMETERS
 CLARK TC= 2.22 HR, R= 0.13 HR
 SNYDER TP= 1.24 HR, CP= 0.78

UNIT HYDROGRAPH
 10 END-OF-PERIOD ORDINATES

1. 2. 3. 4. 5. 5. 4. 3. 2. 1.

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

HYDROGRAPH AT STATION SUB1

TOTAL RAINFALL = 3.83, TOTAL LOSS = 2.00, TOTAL EXCESS = 1.83

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
5.	13.50	2.	1.	0.	0.
		(INCHES) 1.391	1.826	1.826	1.826
		(AC-FT) 1.	1.	1.	1.

CUMULATIVE AREA = 0.01 SQ MI

28 KK *****
 * *
 * COMB1 *
 * *

3R

COMBINE ROUT1 AND SUB1

30 KO OUTPUT CONTROL VARIABLES

IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

31 HC HYDROGRAPH COMBINATION

ICOMP 2 NUMBER OF HYDROGRAPHS TO COMBINE

HYDROGRAPH AT STATION COMB1

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
.66	13.25	17.	5.	2.	2.
(INCHES)		3.631	4.175	4.175	4.175
(AC-FT)		9.	10.	10.	10.
CUMULATIVE AREA =		0.04 SQ MI			

32 KK *****
 * *
 * SUB3 *
 * *

SUB-BASIN WHICH INCLUDES FACILITY AND FACILITY PONDS

34 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

SUBBASIN RUNOFF DATA

35 BA SUBBASIN CHARACTERISTICS
 TAREA 0.02 SUBBASIN AREA

PRECIPITATION DATA

36 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM
 HYDRO-35 TP-40 TP-49
 5-MIN 15-MIN 60-MIN 2-HR 3-HR 6-HR 12-HR 24-HR 2-DAY 4-DAY 7-DAY 10-DAY
 0.46 0.95 1.70 2.05 2.20 2.55 3.00 3.83 0.00 0.00 0.00 0.00
 STORM AREA = 0.02

37 LS SCS LOSS RATE
 STRL 0.50 INITIAL ABSTRACTION
 CRVNBR 80.00 CURVE NUMBER
 RTIMP 60.00 PERCENT IMPERVIOUS AREA

38 US SNYDER UNITGRAPH
 TP 0.23 LAG
 CP 33.10 PEAKING COEFFICIENT

SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

UNIT HYDROGRAPH PARAMETERS
 CLARK TC= 0.34 HR, R= 0.13 HR
 SNYDER TP= 0.23 HR, CP= 0.56

UNIT HYDROGRAPH
 3 END-OF-PERIOD ORDINATES

22. 27. 5.
 *** *** *** *** ***

HYDROGRAPH AT STATION SUB3

TOTAL RAINFALL = 3.83, TOTAL LOSS = 0.77, TOTAL EXCESS = 3.06

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
27.	12.50	5.	2.	1.	1.
		(INCHES) 2.097	3.052	3.059	3.059
		(AC-FT) 2.	3.	3.	3.

CUMULATIVE AREA = 0.02 SQ MI

39 KK

* RESV2 *

4C

FACILITY RETENTION PONDS

41 KO

OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE
IPNCH	0	PUNCH COMPUTED HYDROGRAPH
IOUT	22	SAVE HYDROGRAPH ON THIS UNIT
ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	300	LAST ORDINATE PUNCHED OR SAVED
TIMINT	0.250	TIME INTERVAL IN HOURS

HYDROGRAPH ROUTING DATA

42 RN

NO ROUTING

HYDROGRAPH AT STATION RESV2

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
27.	12.50	5.	2.	1.	1.
		(INCHES) 2.097	3.052	3.059	3.059
		(AC-FT) 2.	3.	3.	3.

CUMULATIVE AREA = 0.02 SQ MI

43 KK

* ROUT2 *
* *

5C

ROUTE RESV2 THROUGH SUB4

45 KO

OUTPUT CONTROL VARIABLES

IPRNT 3 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE
IPNCH 0 PUNCH COMPUTED HYDROGRAPH
IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
TIMINT 0.250 TIME INTERVAL IN HOURS

HYDROGRAPH ROUTING DATA

46 RM

MUSKINGUM ROUTING

NSTPS 1 NUMBER OF SUBREACHES
AMSKK 0.60 MUSKINGUM K
X 0.40 MUSKINGUM X

***** WARNING ***** POSSIBLE INSTABILITIES IN THE MUSKINGUM ROUTING FOR REACH ROUT2.
REDUCE NSTPS OR DECREASE YOUR COMPUTATION INTERVAL (FIRST FIELD OF THE IT RECORD).

*** **

HYDROGRAPH AT STATION ROUT2

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
25.	12.75	5.	2.	1.	1.
		(INCHES) 2.096	3.047	3.059	3.059
		(AC-FT) 2.	3.	3.	3.
CUMULATIVE AREA =		0.02 SQ MI			

47 KK

* SUB4 *

SUB-BASIN SOUTH OF EAST FORK CHISHOLM CREEK

49 KO

OUTPUT CONTROL VARIABLES

IPRNT 3 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE
IPNCH 0 PUNCH COMPUTED HYDROGRAPH
IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
TIMINT 0.250 TIME INTERVAL IN HOURS

SUBBASIN RUNOFF DATA

50 BA

SUBBASIN CHARACTERISTICS

TAREA 0.05 SUBBASIN AREA

PRECIPITATION DATA

51 PH

DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM

..... HYDRO-35 TP-40 TP-49

5-MIN	15-MIN	60-MIN	2-HR	3-HR	6-HR	12-HR	24-HR	2-DAY	4-DAY	7-DAY	10-DAY
0.46	0.95	1.70	2.05	2.20	2.55	3.00	3.83	0.00	0.00	0.00	0.00

STORM AREA = 0.05

52 LS

SCS LOSS RATE

STRTL 0.13 INITIAL ABSTRACTION
CRVNBR 94.00 CURVE NUMBER
RTIMP 0.00 PERCENT IMPERVIOUS AREA

53 US

SNYDER UNITGRAPH

TP 0.80 LAG
CP 54.80 PEAKING COEFFICIENT

SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

UNIT HYDROGRAPH PARAMETERS

CLARK TC= 1.45 HR, R= 0.13 HR
SNYDER TP= 0.81 HR, CP= 0.78

UNIT HYDROGRAPH
7 END-OF-PERIOD ORDINATES

7. 19. 28. 31. 27. 16. 5.

*** **

HYDROGRAPH AT STATION SUB4

TOTAL RAINFALL = 3.83, TOTAL LOSS = 0.67, TOTAL EXCESS = 3.16

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
47.	13.00	13.	4.	1.	1.
		(INCHES) 2.315	3.158	3.158	3.158
		(AC-FT) 6.	9.	9.	9.

CUMULATIVE AREA = 0.05 SQ MI

54 KK *****
 * SUB5 *
 * *

SUB-BASIN SOUTH OF SUB4 ALONG SOUTH PROPERTY LINE

56 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IPNCH 0 PUNCH COMPUTED HYDROGRAPH
 IOUT 22 SAVE HYDROGRAPH ON THIS UNIT
 ISAV1 1 FIRST ORDINATE PUNCHED OR SAVED
 ISAV2 300 LAST ORDINATE PUNCHED OR SAVED
 TIMINT 0.250 TIME INTERVAL IN HOURS

SUBBASIN RUNOFF DATA

57 BA SUBBASIN CHARACTERISTICS
 TAREA 0.03 SUBBASIN AREA

PRECIPITATION DATA

58 PH DEPTHS FOR 2-PERCENT HYPOTHETICAL STORM
 HYDRO-35 TP-40 TP-49
 5-MIN 15-MIN 60-MIN 2-HR 3-HR 6-HR 12-HR 24-HR 2-DAY 4-DAY 7-DAY 10-DAY
 0.46 0.95 1.70 2.05 2.20 2.55 3.00 3.83 0.00 0.00 0.00 0.00

STORM AREA = 0.03

59 LS SCS LOSS RATE
 STRTL 0.13 INITIAL ABSTRACTION
 CRVNB 94.00 CURVE NUMBER
 RTIMP 0.00 PERCENT IMPERVIOUS AREA

60 US SNYDER UNITGRAPH
 TP 1.76 LAG
 CP 105.20 PEAKING COEFFICIENT

SYNTHETIC ACCUMULATED-AREA VS. TIME CURVE WILL BE USED

UNIT HYDROGRAPH PARAMETERS
 CLARK TC= 3.19 HR, R= 0.13 HR
 SNYDER TP= 1.75 HR, CP= 0.78

UNIT HYDROGRAPH
 14 END-OF-PERIOD ORDINATES

1. 3. 4. 5. 6. 7. 8. 7. 6.
 5. 4. 2. 1.

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

HYDROGRAPH AT STATION SUB5

TOTAL RAINFALL = 3.83, TOTAL LOSS = 0.67, TOTAL EXCESS = 3.16

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
14.	13.75	6.	2.	1.	1.
(INCHES)		2.304	3.157	3.158	3.158
(AC-FT)		3.	4.	4.	4.

CUMULATIVE AREA = 0.03 SQ MI

```

*****
*           *
61 KK * COMB2 *           6R
*           *
*****

```

```

62 KO OUTPUT CONTROL VARIABLES
      IPRNT      3 PRINT CONTROL
      IPLOT      0 PLOT CONTROL
      QSCAL      0. HYDROGRAPH PLOT SCALE
      IPNCH      0 PUNCH COMPUTED HYDROGRAPH
      IOUT       22 SAVE HYDROGRAPH ON THIS UNIT
      ISAV1      1 FIRST ORDINATE PUNCHED OR SAVED
      ISAV2      300 LAST ORDINATE PUNCHED OR SAVED
      TIMINT     0.250 TIME INTERVAL IN HOURS

```

```

63 HC HYDROGRAPH COMBINATION
      ICOMP      3 NUMBER OF HYDROGRAPHS TO COMBINE

```

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

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```

      HYDROGRAPH AT STATION COMB2
PEAK FLOW TIME MAXIMUM AVERAGE FLOW
+ (CFS) (HR) 6-HR 24-HR 72-HR 74.75-HR
+ 79. 12.75 (CFS) 24. 8. 3. 3.
      (INCHES) 2.263 3.125 3.137 3.136
      (AC-FT) 12. 16. 16. 16.
      CUMULATIVE AREA = 0.10 SQ MI

```

```

*****
*           *
64 KK * COMB3 *           COMB2
*           *
*****

```

COMBINE ALL FLOW FROM SUBJECT PROPERTY

```

66 KO OUTPUT CONTROL VARIABLES
      IPRNT      3 PRINT CONTROL
      IPLOT      0 PLOT CONTROL
      QSCAL      0. HYDROGRAPH PLOT SCALE
      IPNCH      0 PUNCH COMPUTED HYDROGRAPH
      IOUT       22 SAVE HYDROGRAPH ON THIS UNIT
      ISAV1      1 FIRST ORDINATE PUNCHED OR SAVED
      ISAV2      300 LAST ORDINATE PUNCHED OR SAVED
      TIMINT     0.250 TIME INTERVAL IN HOURS

```

```

67 HC HYDROGRAPH COMBINATION
      ICOMP      2 NUMBER OF HYDROGRAPHS TO COMBINE

```

```

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

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```

      HYDROGRAPH AT STATION COMB3
PEAK FLOW TIME MAXIMUM AVERAGE FLOW
+ (CFS) (HR) 6-HR 24-HR 72-HR 74.75-HR
+ 140. 13.00 (CFS) 41. 13. 4. 4.
      (INCHES) 2.684 3.453 3.461 3.461
      (AC-FT) 20. 26. 26. 26.
      CUMULATIVE AREA = 0.14 SQ MI

```

```

*****
*           *
68 KK      * COMB2 *           COMB3
*           *
*****

```

```

69 KD      OUTPUT CONTROL VARIABLES
          IPRNT      3 PRINT CONTROL
          IPLOT      0 PLOT CONTROL
          QSCAL      0. HYDROGRAPH PLOT SCALE
          IPNCH      0 PUNCH COMPUTED HYDROGRAPH
          IOUT       22 SAVE HYDROGRAPH ON THIS UNIT
          ISAV1      1 FIRST ORDINATE PUNCHED OR SAVED
          ISAV2      300 LAST ORDINATE PUNCHED OR SAVED
          TIMINT     0.250 TIME INTERVAL IN HOURS

```

```

70 RN      HYDROGRAPH ROUTING DATA
          NO ROUTING

```

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

```

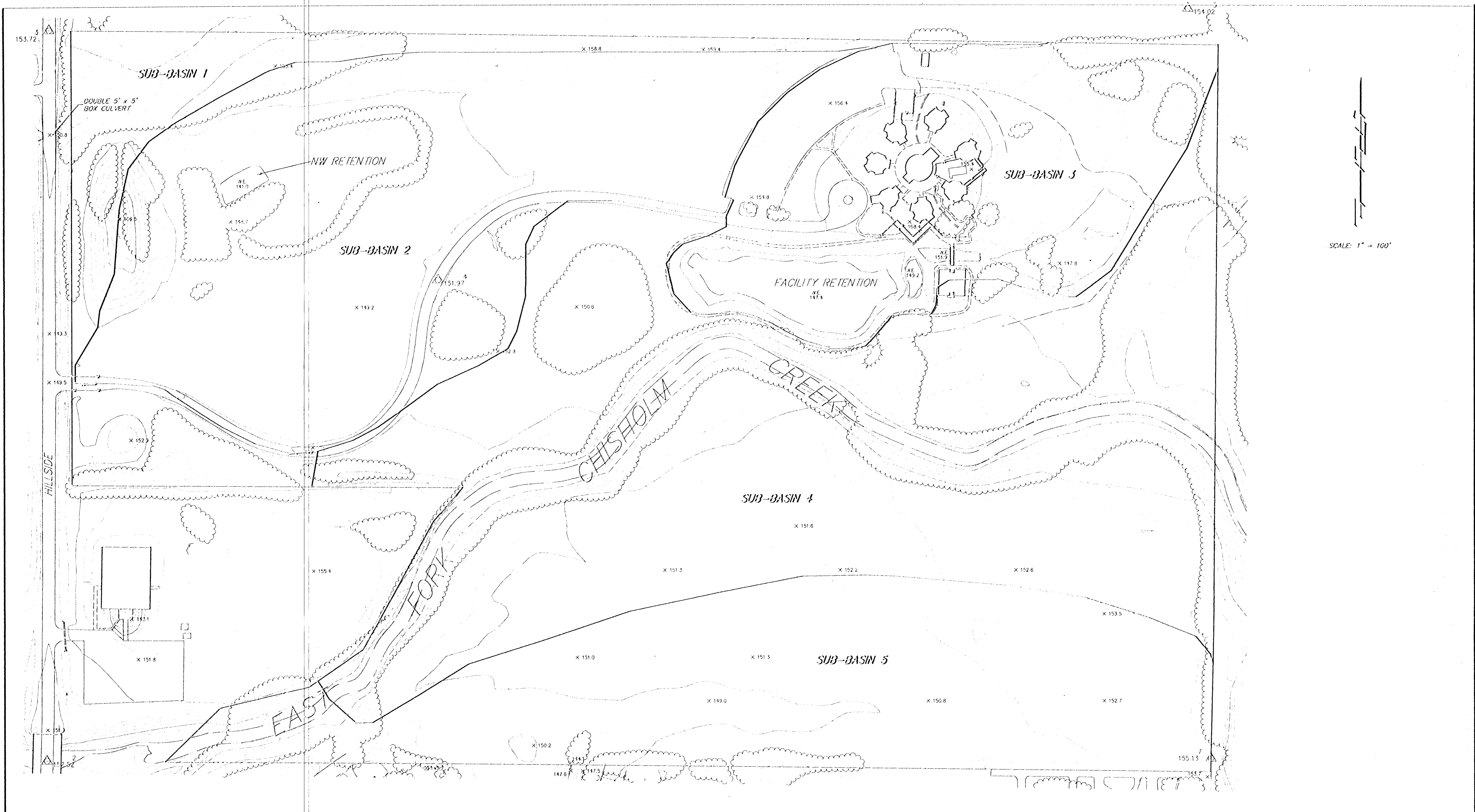
HYDROGRAPH AT STATION COMB2

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	74.75-HR
140.	13.00	41.	13.	4.	4.
		(INCHES) 2.684	3.453	3.461	3.461
		(AC-FT) 20.	26.	26.	26.
CUMULATIVE AREA =		0.14 SQ MI			


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

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SUB2	70.	12.75	16.	4.	1.	0.03		
ROUTED TO	RESV1	70.	12.75	16.	4.	1.	0.03		
ROUTED TO	ROUT1	61.	13.25	16.	4.	1.	0.03		
HYDROGRAPH AT	SUB1	5.	13.50	2.	1.	0.	0.01		
2 COMBINED AT	COMB1	66.	13.25	17.	5.	2.	0.04		
HYDROGRAPH AT	SUB3	27.	12.50	5.	2.	1.	0.02		
ROUTED TO	RESV2	27.	12.50	5.	2.	1.	0.02		
ROUTED TO	ROUT2	25.	12.75	5.	2.	1.	0.02		
HYDROGRAPH AT	SUB4	47.	13.00	13.	4.	1.	0.05		
HYDROGRAPH AT	SUB5	14.	13.75	6.	2.	1.	0.03		
3 COMBINED AT	COMB2	79.	12.75	24.	8.	3.	0.10		
2 COMBINED AT	COMB3	140.	13.00	41.	13.	4.	0.14		
ROUTED TO	COMB2	140.	13.00	41.	13.	4.	0.14		

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



CHISHOLM CREEK CENTER ADDITION
CITY OF WICHITA, KANSAS

CHISHOLM CREEK CENTER				
WORK MAP				
CITY OF WICHITA, KANSAS				
 BAUGHMAN COMPANY P.A. ENGINEERING, SURVEYING & PLANNING <small>310-282-7271 • 310 ELLIS • WICHITA, KANSAS 67211</small>				
PROJECT NUMBER				
DESIGN	DRAWN	APPROVED	DATE	SCALE
	JDS		12AUG94	NOTED
				SHEET
				1
				OF
				1