PRELIMINARY DRAINAGE REPORT

FOR

KRUG SOUTH ADDITION
Wichita, Kansas

REVISED JANUARY 2007
REVISED NOVEMBER 2006
SEPTEMBER 2006

Preliminary Drainage Report for Krug South Addition
Wichita, Sedgwick County, Kansas

Location

The site is located in Sedgwick County, Kansas, on the southwest corner of 143rd Street East and 21st Street North. It lies in the northeast quarter of Section 11, Township 27 South, Range 2 East of the Sixth Principal Meridian, Sedgwick County, Kansas. The total site area is approximately 116 acres. The site is bounded by Reeds Cove Addition to the west, 21st Street to the north, and 143rd Street to the east. To the south is the Burlington Northern Railroad. The site is shown on the Andover, Kansas Quadrangle located in Appendix A.

Soils

According to the NRCS (SCS) Sedgwick County Soil Survey (Appendix B), most of the site is in the Rose Hill Series (Rd: silty clay, 1 to 3 percent slopes). The northeast section of the site is in the Irwin Series (Ia: Irwin silty clay loam, with 1 to 3 percent slopes) and a small portion in the southwest corner of the site is in the Clime Series (Ce: Clime silty clay, with 3 to 7 percent slopes). The Hydrological Soil Group (HSG) for the site is " D" .

Pre-developed Conditions

Current Development

The site is undeveloped agricultural land.

Current Landform and Slope

A tributary of Fourmile Creek flows northeast to southwest through small portions of the site. Elevations on site vary from roughly 1382 feet on the east edge of the watershed, to 1340 feet in the southwest portion. Watershed slopes vary from 1.2% to 4.0%. The site drains east to west, toward the tributary. There is one pond located in the northwest section of the site.

Current Drainage Conditions

Most of the site is outside Zone A, however, portions of the site along the western boundary extend into Zone A (FIRM Panel 150, Sedgwick County, June 3, 1986) (Appendix C). A small area of Zone B is found in the southwest corner of the site.

A Letter of Map Revision (LOMR) (Case No. 05-07-0176P) was submitted for the Reed' s Cove Addition. This LOMR defined the floodplain and floodway through the site (Appendix D). A TR-20 model was developed as a part of the LOMR; this program modeled Fourmile Creek and its associated tributaries. This TR-20 model was used in this drainage analysis.

Upstream of Site

Flows upstream of the site are captured by the tributary and flow into Fourmile Creek. Flows from 143rd Street are captured in a roadside drainage ditch that runs parallel to the east boundary of the site.

Current Runoff Characteristics

The pre and post-project watersheds are outlined in Appendix E. The site was divided into two separate basins; Basin 1 drains to the channel and pond on the western edge of the site and includes 191 acres of off-site area. Basin 2 drains south; through the central portion of the site.

TR-20 was used to model Basin 1 and for Basin 2 peak flows were calculated using Hydraflow 2005 software by Intellisolve and the rational method (Appendix F).

Table 1 shows the breakdown of the pre and post-project basins and watersheds.

Table 1. Pre-project watershed delineation.

Description	Area (acres)	Land Use
Basin 1	**257**	
Offsite	191	Developed Residential
On-site	66	Undeveloped Agricultural 1-4 % slopes
Basin 2	**50**	
On-site	50	Undeveloped Agricultural 1-4 % slopes

Basin 1: The TR-20 model was used to calculate pre-project flows for Basin 1. A weighted curve number of 85.4 is used in the model to represent Basin 1 (TR-20 designation: RUNOFF 024). The FAA method was used to determine the time of concentration, calculations are in Appendix G. Table 2 shows the pre-project runoff for the 2, 5, 10 and 100-year design storms for Basin 1.

Table 2. Basin 1 Pre-project runoff.

Description	Runoff (cfs)			
	2-year	5-year	10-year	100-year
Basin 1 (TR-20 cross section 27)	477	893	1164	2081

Basin 2: The rational method was used to calculate runoff from Basin 2. The FAA method was also used to determine the time of concentration for each watershed in Basin 2. The time of concentration calculations and rational coefficients for Basin 2 are in Appendix G. Table 3 shows the peak-discharge from Basin 2 for the 2, 5, 10 and 100-year storm event.

Table 3. Basin 2 Pre-project runoff.

Description	Runoff (cfs)			
	2-year	5-year	10-year	100-year
Basin 2	84	103	120	172

Post-Developed Condition

Proposed Development

The site will develop into approximately 20 acres of commercial property and 96 acres of residential lots.

Proposed Landform and Slope

Four detention ponds are proposed for the site. The four proposed ponds along with the existing pond will be designed/modified to ensure post-project flow rates are lower than or equal to pre-project flows.

Final slopes in the residential and commercial development have not been determined, but the minimum will be 0.5% within street right-of-way and for commercial development, and 1-2% in backyards (Grading Plan, Appendix H).

Proposed Runoff Characteristics

Basin 1: The on-site watershed (TR-20 designation: RUNOFF 028) will be developed into residential lots; therefore the post-project curve number is 88. The offsite watershed remains unchanged from pre to post-project (TR-20 designation: RUNOFF 024). Time of concentration calculations are in Appendix G. The proposed storm sewer layout is shown on the Utility Plan, Appendix I and calculations for the pipe sizing are in Appendix J.

Ponds A (TR-20 designation: STRUC 07) and B (TR-20 designation: STRUC 08) in the northwest corner of the site will have a normal pool elevation of 1352.0 and a 100-year elevation of 1356.7 and 1352.8, respectively. A 20-foot weir set at the normal pool and three 5' x8' reinforced concrete boxes with a flowline of 1351 control outflow from Pond A into Pond B. The outlet for Pond B is a rectangular weir with a crest length of 100 feet set at the normal pool elevation. A large weir structure (TR-20 designation: STRUC 06) located just north of the Burlington Northern Railroad, southwest of Krug South, is also proposed. This structure has a weir length of 110 feet with a flowline of 1342.7 and a 3.5' x30' opening at elevation 1337.0. A preliminary plan of this structure is in Appendix K. Table 4 shows the post-project flows from Basin 1.

Table 4. Basin 1 Post-project runoff.

Description	Runoff (cfs)			
	2-year	5-year	10-year	100-year
Basin 1 (TR-20 structure 06)	420	791	1030	2053

Basin 2: The on-site watershed will be developed into residential lots. Basin 2 was divided into Watershed 3 and 4 for post-project drainage calculations; post-project time of concentrations and rational coefficients are in Appendix G. Runoff from Watershed 3 will be directed, via overland flow or storm sewers, to Pond C. Pond C will have a normal pool of 1356.0 and a 100-year elevation of 1358.7 A rectangular weir with a crest length of 4 feet controls flow from Pond C to Pond D downstream. Runoff from Watershed 4 is directed to Pond D. A 7-foot rectangular weir controls flow out of Pond D, offsite. Pond D has a normal pool elevation of 1355 and a 100-year elevation of 1357.9. Downstream of Pond D are two 4' x4' reinforced concrete boxes. This structure can adequately handle the 100-year design storm from Pond D. Table 5 shows the post-project flows for Basin 2.

Table 5. Basin 2 Post-project runoff.

Description	Runoff (cfs)			
	2-year	5-year	10-year	100-year
Basin 2	41	59	73	115

TR-20 and Hydraflow runoff calculations, for pre and post-project conditions, and pond sizing calculations are in Appendix F. The proposed Drainage Plan is in Appendix L.

Post-project peak-discharges from both basins will decrease from pre-project flows. Table 6 shows the comparison of pre and post project flows.

Table 6. Comparison of pre and post-project flows.

Description	Runoff (cfs)			
	2-year	5-year	10-year	100-year
Pre-project Basin 1	477	893	1164	2081
Post-project Basin 1	420	791	1030	2053

Pre-project Basin 2	84	103	120	172
Post-project Basin 2	41	59	73	115

Additional Flow Structures

Three 5' x8' reinforced concrete boxes are proposed for directing flow from north of the Krug site, south, under 21st Street.

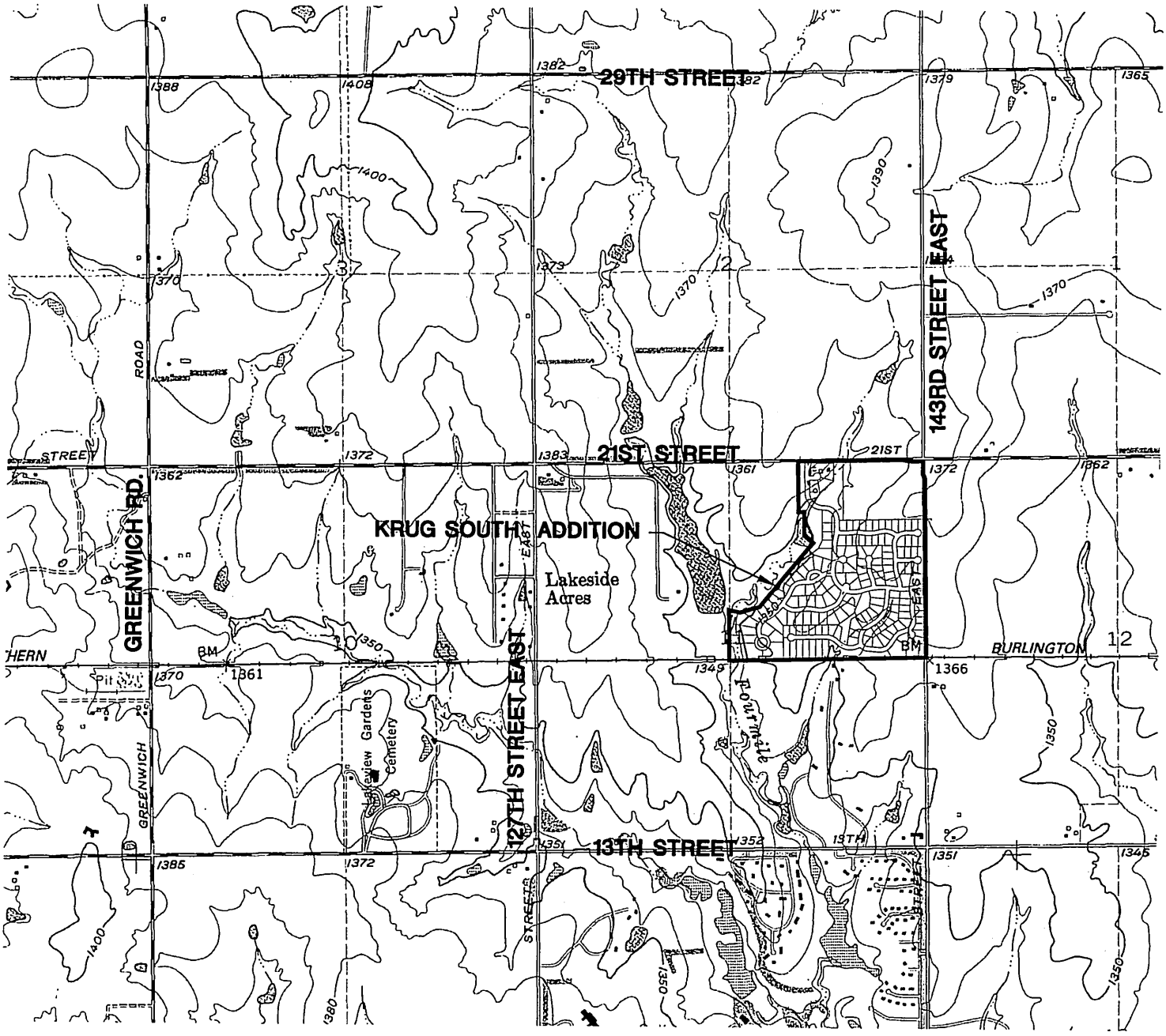
Permits

Permits will be obtained from the Division of Water Resources (DWR) for the floodplain fill and stream obstruction and channel changes. The Army Corps of Engineers will be contacted about wetland issues. A LOMR application will be submitted to FEMA to revise the floodplain and floodway on a portion of the property.

Summary

Krug South Addition is located in Sedgwick County, Kansas, on the southwest corner of 143rd Street East and 21st Street North. Krug South will develop into commercial property and residential lots. The development will include three reserves for ponds. Post-project runoff from the watershed will increase from pre-project flows. The proposed and existing ponds will provide adequate detention and prevent increased peak flows from the site. Storm sewers will carry runoff from streets and yards into the ponds. Based on the studied pre-developed and post-developed conditions, the total flow from the site is reduced by 85 cfs for the 100-year design storm.

Appendix A
Quadrangle



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NATIONAL GEODETIC VERTICAL DATUM OF 1929

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MKEC ENGINEERING CONSULTANTS, INC.

411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

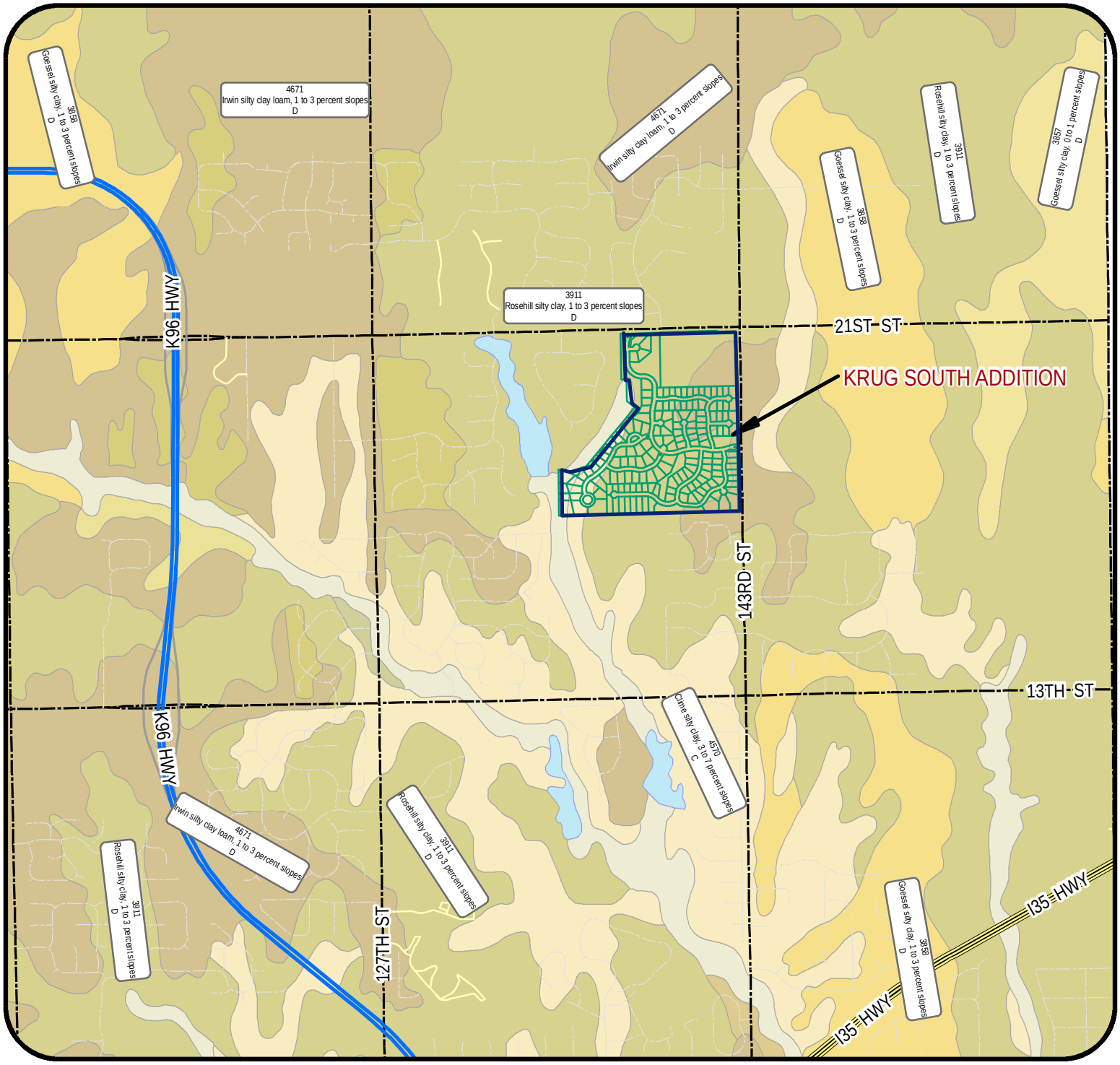
KRUG SOUTH ADDITION
PROJECT NAME

USGS GEOLOGICAL SURVEY
ANDOVER, KANSAS QUADRANGLE
SHEET TITLE

TMH	CMJ	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:

NOVEMBER 2006	05291	1 / 1
DATE	JOB NO.	SHEET/OF

Appendix B
Soil Survey



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1,000 500 0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 Feet

1 0.5 0 1 Kilometers

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Krug South Addition

Project Name:

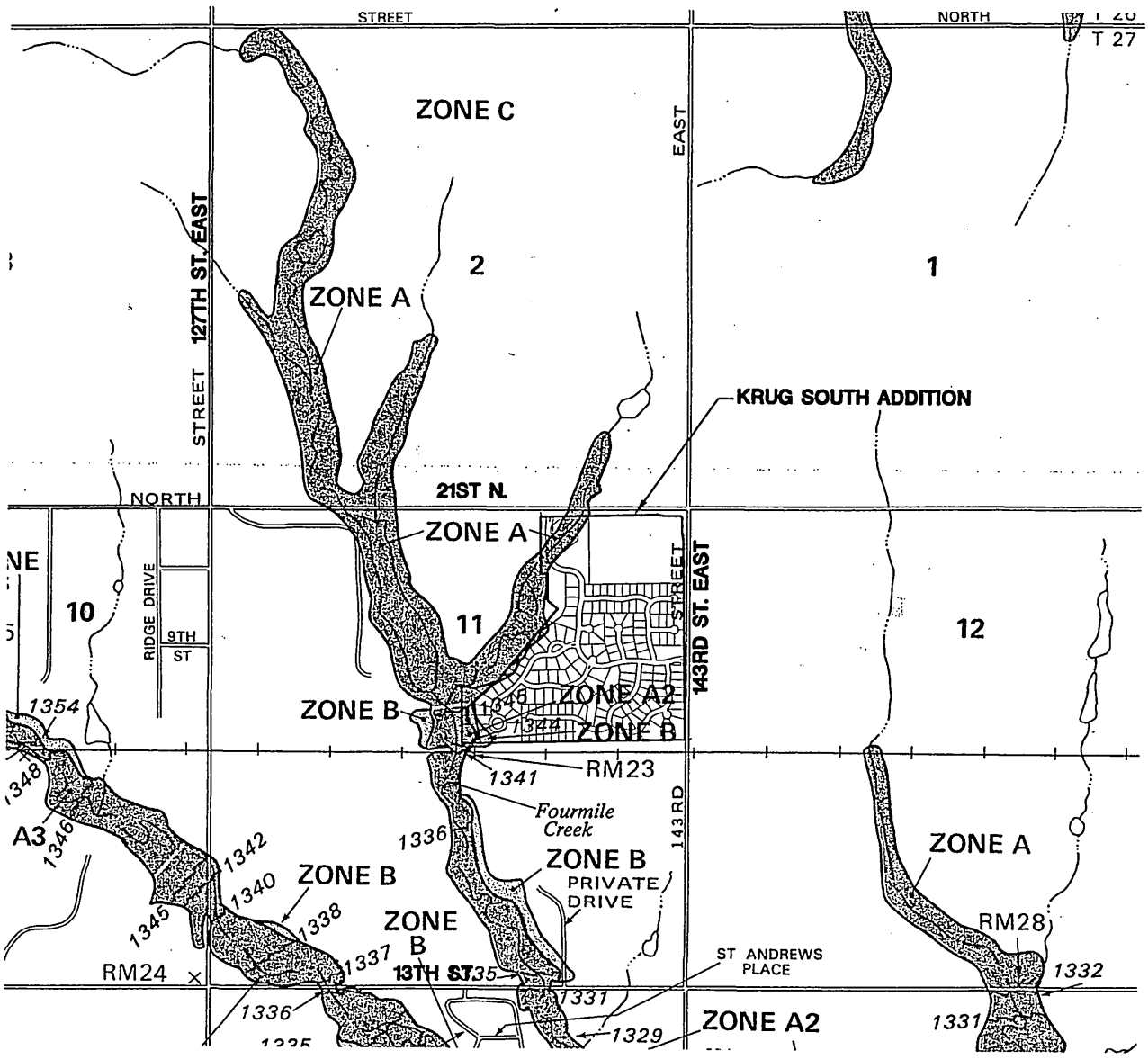
Soil Survey - Sedgwick County, KS

Sheet Title:

MKEC ENGINEERING CONSULTANTS, INC.

KWS	NOV. 2006
Drawn By:	Date:
TMH / KLA	05291
Design / Review:	Job No.:

Appendix C
FIRM / FBFM



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

SEDGWICK
COUNTY,
KANSAS
(UNINCORPORATED AREAS)

PANEL 150 OF 300

COMMUNITY-PANEL NUMBER
200321 0150 A

EFFECTIVE DATE:
JUNE 3, 1986

Federal Emergency Management Agency

APPROXIMATE SCALE

2000 0 2000 FEET

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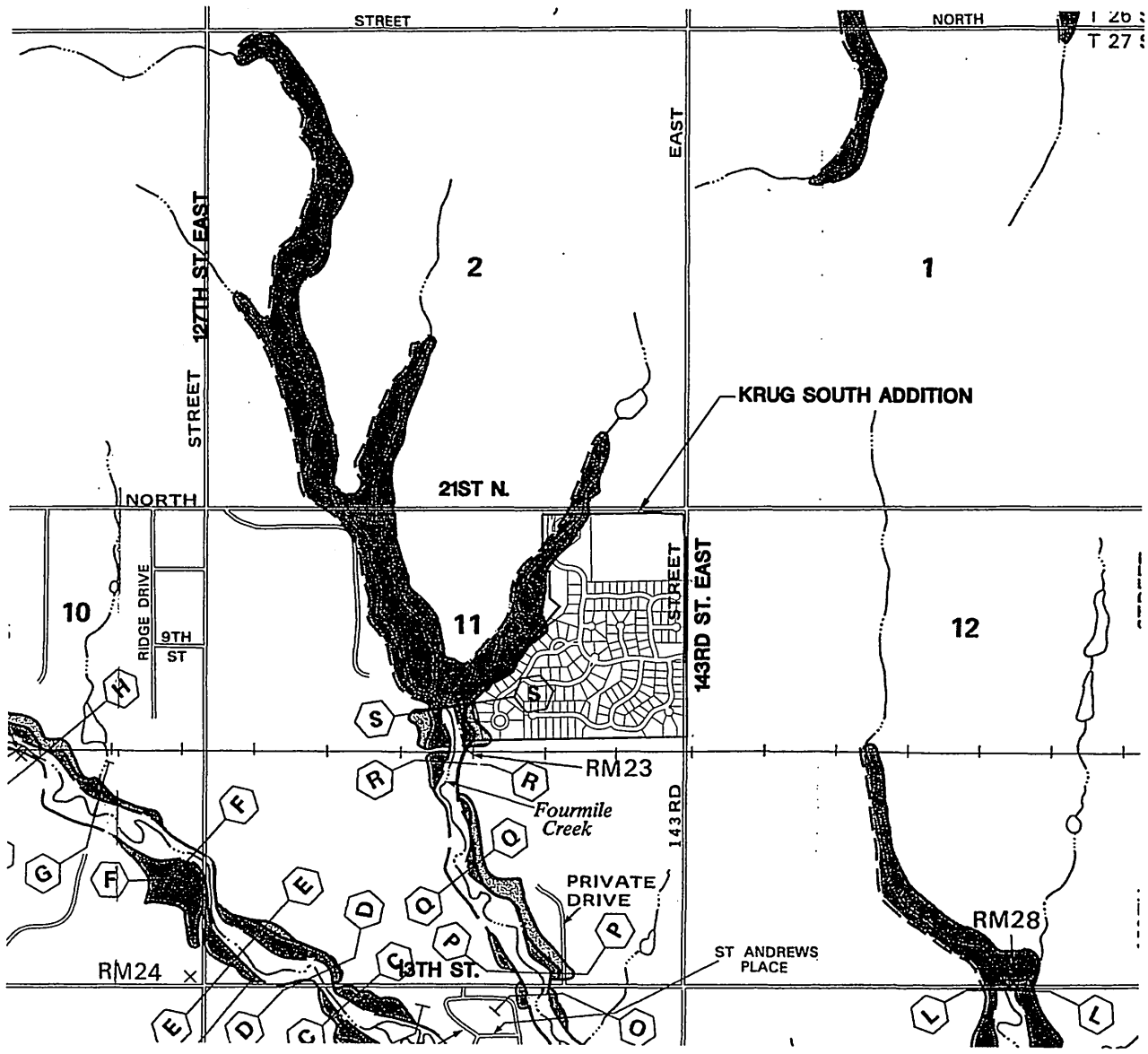
MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

KRUG SOUTH ADDITION
PROJECT NAME

FIRM PANEL 150 OF 300
ANDOVER, KANSAS
SHEET TITLE

TMH	CMJ	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:
NOVEMBER 2006	05291	1 / 1
DATE	JOB NO.	SHEET/OF



NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

SEDGWICK COUNTY, KANSAS
(UNINCORPORATED AREAS)

PANEL 150 OF 300
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
200321 0150

EFFECTIVE DATE:
JUNE 3, 1986

Federal Emergency Management Agency

APPROXIMATE SCALE

2000 0 2000 FEET

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MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

KRUG SOUTH ADDITION
PROJECT NAME

FBFM PANEL 150 OF 300
ANDOVER, KANSAS
SHEET TITLE

TMH	CMJ	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:

NOVEMBER 2006	05291	1 / 1
DATE	JOB NO.	SHEET/OF

Appendix D
LOMR

Federal Emergency Management Agency

Washington, D.C. 20472

JAN 3 0 2006

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Dave Unruh
Chairman, Sedgwick County
Board of Commissioners
525 North Main Street, Suite 320
Wichita, KS 67203

IN REPLY REFER TO:
Case No.: 05-07-0176P
Community Name: Sedgwick County, KS
Community No.: 200321
Effective Date of This Revision: MAY 1 8 2006

Dear Mr. Unruh:

The Flood Insurance Study report, Flood Insurance Rate Map, and Flood Boundary and Floodway Map for your community have been revised by this Letter of Map Revision (LOMR). Please use the enclosed annotated map panel(s) revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals issued in your community.

Additional documents are enclosed which provide information regarding this LOMR. Please see the List of Enclosures below to determine which documents are included. Other attachments specific to this request may be included as referenced in the Determination Document. If you have any questions regarding floodplain management regulations for your community or the National Flood Insurance Program (NFIP) in general, please contact the Consultation Coordination Officer for your community. If you have any technical questions regarding this LOMR, please contact the Director, Federal Insurance and Mitigation Division of the Department of Homeland Security's Federal Emergency Management Agency (FEMA) in Kansas City, Missouri, at (816) 283-7002, or the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP). Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Sincerely,

Kevin C Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division

For: Doug Bellomo, P.E., Chief
Hazard Identification Section
Mitigation Division

List of Enclosures:
Letter of Map Revision Determination Document
Annotated Flood Insurance Rate Map
Annotated Flood Boundary and Floodway Map
Annotated Flood Insurance Study Report

cc: Mr. Robert George, CFM
Floodplain Manager
Sedgwick County

Mr. Shawn Bryan, P.E.
Storm Water Engineer
City of Wichita

Mr. Rob Ramseyer
Vice President
Ritchie Associates, Inc.

Mr. Mark Buckingham, P.E.
MKEC Engineering Consultants, Inc.

Mr. Brian L. Glenn, P.E.
Baughman Company, P.A.

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	Sedgwick County Kansas (Unincorporated Areas)	CHANNELIZATION CULVERT FILL WEIR STRUCTURE	HYDROLOGIC ANALYSIS HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 200321		
IDENTIFIER	Rocky Creek Addition	APPROXIMATE LATITUDE & LONGITUDE: 37.719, -97.182 SOURCE: USGS QUADRANGLE DATUM: NAD 83	

FLOODING SOURCES & REVISED REACHES	Fourmile Creek – from approximately 1,530 feet downstream of the Burlington Northern Railroad (BNRR) to approximately 720 feet upstream of 21st Street North Unnamed Tributary to Fourmile Creek – from its confluence with Fourmile Creek to approximately 170 feet downstream of Williamsgate Road

SUMMARY OF REVISIONS

	Fourmile Creek			Unnamed Tributary to Fourmile Creek		
Effective Flooding:	Zone AE	BFEs*	Floodway	Zone AE	BFEs*	Floodway
Revised Flooding:	Zone AE	BFEs	Floodway	Zone AE	BFEs	Floodway
Increases:	YES	YES	YES	YES	YES	YES
Decreases:	YES	YES	YES	YES	YES	YES

* BFEs – Base Flood Elevations

ANNOTATED MAPPING ENCLOSURES			ANNOTATED STUDY ENCLOSURES
TYPE: FIRM*	NO.: 200321 0150 A	Date: June 3, 1986	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: June 3, 1986 FLOODWAY DATA TABLE PROFILES: 48P and 76P SUMMARY OF DISCHARGES TABLE
TYPE: FBFM**	NO.: 200321 0150	Date: June 3, 1986	

* FIRM – Flood Insurance Rate Map; ** FBFM – Flood Boundary and Floodway Map; *** FHBM – Flood Hazard Boundary Map

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Kevin C Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division

106979 10.3.1.05070176 102IAC

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	Sedgwick County Kansas (Unincorporated Areas)	CHANNELIZATION CULVERT FILL WEIR STRUCTURE	HYDROLOGIC ANALYSIS HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 200321		
IDENTIFIER	Rocky Creek Addition	APPROXIMATE LATITUDE & LONGITUDE: 37.719, -97.182 SOURCE: USGS QUADRANGLE DATUM: NAD 83	
FLOODING SOURCES & REVISED REACHES	Unnamed Tributary 2 to Fourmile Creek – from its confluence with Fourmile Creek to approximately 960 feet upstream of 21st Street North		

SUMMARY OF REVISIONS

Effective Flooding:	Zone A	No BFEs*	No Floodway
Revised Flooding:	Zone AE	BFEs	Floodway
Increases:	YES	YES	YES
Decreases:	NONE	NONE	NONE

* BFEs – Base Flood Elevations

ANNOTATED MAPPING ENCLOSURES	ANNOTATED STUDY ENCLOSURES
TYPE: FIRM* NO.: 200321 0150 A Date: June 3, 1986 TYPE: FBFM** NO.: 200321 0150 Date: June 3, 1986	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: June 3, 1986 FLOODWAY DATA TABLE PROFILE: 77P SUMMARY OF DISCHARGES TABLE

* FIRM – Flood Insurance Rate Map; ** FBFM – Flood Boundary and Floodway Map; *** FHBM – Flood Hazard Boundary Map

DETERMINATION

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Hazard Identification Section
Mitigation Division

106979 10.3.1.05070176 102IAC

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report, FIRM, and FBFM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management ordinances; therefore, responsibility for maintenance of the modified channel and culvert rests with your community. We may request that your community submit a description and schedule of channel and culvert maintenance activities.

COMMUNITY REMINDERS

The base (1-percent-annual-chance) flood discharges for Fourmile Creek and Unnamed Tributary to Fourmile Creek were obtained from the LOMR dated September 29, 2005 (Case No. 04-07-526P), without considering subsequent changes in watershed characteristics that could increase flood discharges. The base flood discharges for Unnamed Tributary 2 to Fourmile Creek were obtained from the submitted hydrologic model. Future development of projects upstream could cause increased flood discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on flood discharges and could, therefore, establish greater flood hazards in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Kevin C. Long

Kevin C. Long, CFM, Project Engineer
Hazard Identification Section
Mitigation Division

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION (CONTINUED)

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This revision has met our criteria for removing an area from the 1-percent-annual-chance floodplain to reflect the placement of fill. However, we encourage you to require that the lowest adjacent grade and lowest floor (including basement) of any structure placed within the subject area be elevated to or above the Base (1-percent-annual-chance) Flood Elevation.

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Mr. Robert G. Bissell
Director, Federal Insurance and Mitigation Division
Federal Emergency Management Agency, Region VII
9221 Ward Parkway, Suite 300
Kansas City, MO 64114
(816) 283-7002

STATUS OF THE COMMUNITY NFIP MAPS

Because the revisions requested in LOMR Case Nos. 04-07-A180P, 05-07-0121P, and 05-07-0176P tie together at Fourmile Creek just downstream of the confluence of Unnamed Tributary 2, the first two cases were merged together with the latter case. Therefore, this revision also includes the revisions requested for LOMR Case Nos. 04-07-A180P and 05-07-0121P.

We are processing a revised FIRM and FIS report for Sedgwick County in our countywide format; therefore, we will not physically revise and republish the FIRM, FBFM, and FIS report for your community to incorporate the modifications made by this LOMR at this time. Preliminary copies of the countywide FIRM and FIS report, which present information from the effective FIRMs, FBFMs, and FIS reports for your community and incorporated communities in Sedgwick County, were submitted to your community for review on June 20, 2005. The modifications made by this LOMR will be evaluated and, if appropriate, will be incorporated into the countywide FIRM and FIS report before they become effective.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

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Hazard Identification Section
Mitigation Division

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)

PUBLIC NOTIFICATION OF REVISION

Within 90 days of the second publication in the local newspaper, a citizen may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised BFEs presented in this LOMR may be changed.

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below.

LOCAL NEWSPAPER
Name: *Derby Daily Reporter*
Dates: 02/09/2006 02/16/2006

PUBLIC NOTIFICATION

FLOODING SOURCE	LOCATION OF REFERENCED ELEVATION	BFE (FEET NGVD) EFFECTIVE	BFE (FEET NGVD) REVISED	MAP PANEL NUMBER(S)
Fourmile Creek	Approximately 1,100 feet downstream of the BNRR	1,338	1,337	0150 A
	Just downstream of Glen Wood Street	1,351	1,349	
Unnamed Tributary to Fourmile Creek	At confluence with Fourmile Creek	1,351	1,349	
	Just downstream of 21st Street North	1,351	1,350	
Unnamed Tributary 2 to Fourmile Creek	At confluence with Fourmile Creek	None	1,344	
	Approximately 960 feet upstream of 21st Street North	None	1,362	

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

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Hazard Identification Section
Mitigation Division

CHANGES ARE MADE IN DETERMINATIONS OF BASE FLOOD ELEVATIONS FOR THE UNINCORPORATED AREAS OF SEDGWICK COUNTY, KANSAS, UNDER THE NATIONAL FLOOD INSURANCE PROGRAM

On June 3, 1986, the Department of Homeland Security's Federal Emergency Management Agency identified Special Flood Hazard Areas (SFHAs) in the unincorporated areas of Sedgwick County, Kansas, through issuance of a Flood Insurance Rate Map (FIRM). The Mitigation Division has determined that modification of the elevations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) for certain locations in this community is appropriate. The modified Base Flood Elevations (BFEs) revise the FIRM for the community.

The changes are being made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and are in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65.

A hydraulic analysis was performed to incorporate the effects of construction of the Glen Wood Street culvert along Fourmile Creek; construction of new weirs along Fourmile Creek and Unnamed Tributary to Fourmile Creek; and placement of fill in the floodway fringe and channelization along Fourmile Creek from approximately 1,530 feet downstream of the Burlington Northern Railroad to approximately 720 feet upstream of 21st Street North, along Unnamed Tributary to Fourmile Creek from the confluence with Fourmile Creek to approximately 170 feet downstream of Williamsgate Road, and along Unnamed Tributary 2 to Fourmile Creek from the confluence with Fourmile Creek to approximately 960 feet upstream of 21st Street North. This has resulted in a revised delineation of the regulatory floodways, increases and decreases in SFHA widths, and increased and decreased BFEs for Fourmile Creek and Unnamed Tributary to Fourmile Creek and increases in SFHA width and establishment of BFEs and a regulatory floodway for Unnamed Tributary 2 to Fourmile Creek. The table below indicates existing and modified BFEs for selected locations along the affected lengths of the flooding source(s) cited above.

Location	Existing BFE (feet)*	Modified BFE (feet)*
Fourmile Creek:		
Approximately 1,100 feet downstream of Burlington Northern Railroad	1,338	1,337
Just downstream of Glen Wood Street	1,351	1,349
Unnamed Tributary to Fourmile Creek:		
At confluence with Fourmile Creek	1,351	1,349
Just downstream of 21st Street North	1,351	1,350
Unnamed Tributary 2 to Fourmile Creek:		
At confluence with Fourmile Creek	None	1,344
Approximately 960 feet upstream of 21st Street North	None	1,362

*National Geodetic Vertical Datum, rounded to nearest whole foot

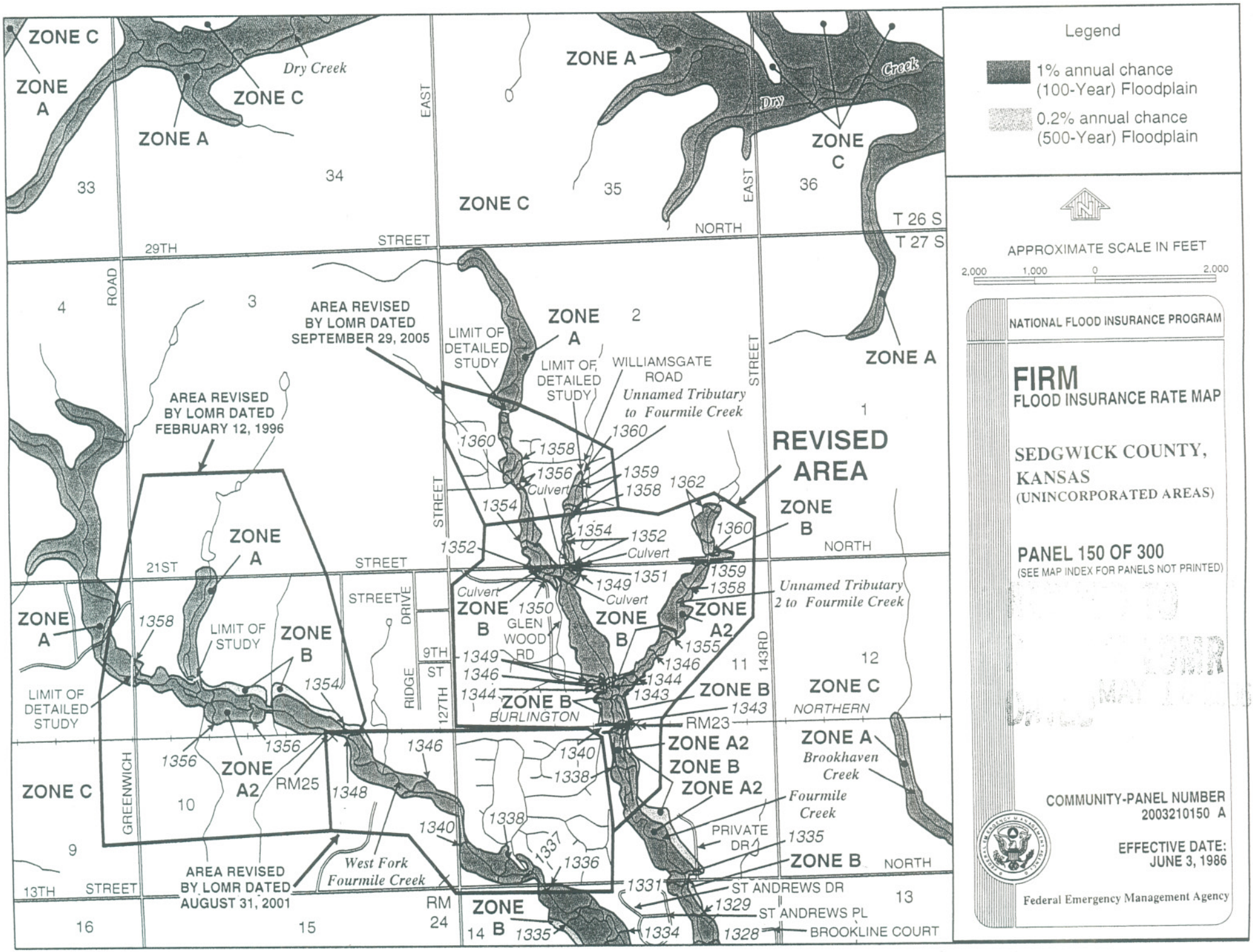
Under the above-mentioned Acts of 1968 and 1973, the Mitigation Division must develop criteria for floodplain management. To participate in the National Flood Insurance Program (NFIP), the community must use the modified BFEs to administer the floodplain management measures of the NFIP. These

modified BFEs will also be used to calculate the appropriate flood insurance premium rates for new buildings and their contents and for the second layer of insurance on existing buildings and contents.

Upon the second publication of notice of these changes in this newspaper, any person has 90 days in which he or she can request, through the Chief Executive Officer of the community, that the Mitigation Division reconsider the determination. Any request for reconsideration must be based on knowledge of changed conditions or new scientific or technical data. All interested parties are on notice that until the 90-day period elapses, the Mitigation Division's determination to modify the BFEs may itself be changed.

Any person having knowledge or wishing to comment on these changes should immediately notify:

The Honorable Dave Unruh
Chairman, Sedgwick County
Board of Commissioners
525 North Main Street, Room 320
Wichita, KS 67203



Legend

1% annual chance (100-Year) Floodplain

0.2% annual chance (500-Year) Floodplain

APPROXIMATE SCALE IN FEET

2,000 1,000 0 2,000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

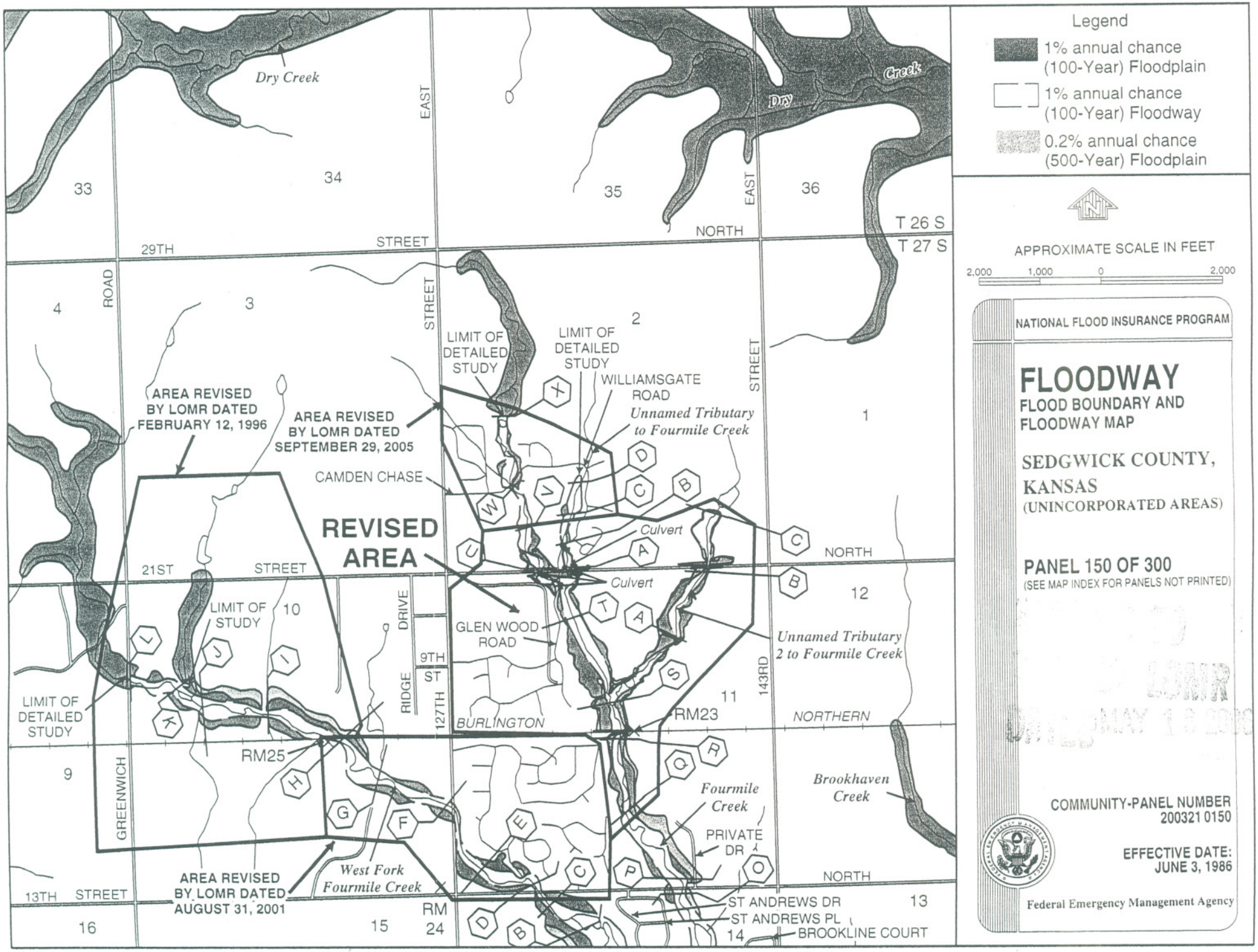
SEDGWICK COUNTY, KANSAS
(UNINCORPORATED AREAS)

PANEL 150 OF 300
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
2003210150 A

EFFECTIVE DATE:
JUNE 3, 1986

Federal Emergency Management Agency


Legend
1% annual chance (100-Year) Floodplain
1% annual chance (100-Year) Floodway
0.2% annual chance (500-Year) Floodplain
APPROXIMATE SCALE IN FEET
2,000 1,000 0 2,000
NATIONAL FLOOD INSURANCE PROGRAM
FLOODWAY
FLOOD BOUNDARY AND FLOODWAY MAP
SEDGWICK COUNTY, KANSAS
(UNINCORPORATED AREAS)
PANEL 150 OF 300
(SEE MAP INDEX FOR PANELS NOT PRINTED)
COMMUNITY-PANEL NUMBER 200321 0150
EFFECTIVE DATE: JUNE 3, 1986
Federal Emergency Management Agency
Dry Creek
Dry Creek
AREA REVISED BY LOMR DATED FEBRUARY 12, 1996
AREA REVISED BY LOMR DATED SEPTEMBER 29, 2005
AREA REVISED BY LOMR DATED AUGUST 31, 2001
REVISED AREA
LIMIT OF DETAILED STUDY
LIMIT OF STUDY
CAMDEN CHASE
WILLIAMSGATE ROAD
GLEN WOOD ROAD
Unnamed Tributary to Fourmile Creek
Unnamed Tributary 2 to Fourmile Creek
Culvert
Culvert
West Fork Fourmile Creek
Fourmile Creek
Brookhaven Creek
PRIVATE DR
ST ANDREWS DR
ST ANDREWS PL
BROOKLINE COURT
BURLINGTON
NORTHERN
RM23
RM25
RM 24
29TH STREET
21ST STREET
13TH STREET
NORTH
EAST
ROAD
STREET
DRIVE
RIDGE
9TH ST
127TH
143RD
GREENWICH
T 26 S
T 27 S
33
34
35
36
4
3
2
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14
15
16

TABLE 1 - SUMMARY OF DISCHARGES (Continued)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA SQ MILES	PEAK DISCHARGES (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
MIDDLE BRANCH GYPSUM CREEK					
At 13th Street	2.2	740	1,090	1,240	1,590
FOURMILE CREEK					
At county boundary	27.2	11,680	17,390	20, 100	26,800
Upstream of confluence of Brookhaven Creek	8.4	3,220	4,760	5,500	7,100
Upstream of confluence of West Fork Fourmile Creek	2.2	1,410	2,070	2,400	3,130
Upstream of confluence of Unnamed Tributary to Fourmile Creek	0.8	467	*	747	925
UNNAMED TRIBUTARY TO FOURMILE CREEK					
At mouth	0.3	234	*	396	494
UNNAMED TRIBUTARY 2 TO FOURMILE CREEK					
At mouth	0.4	340	481	547	565
At 21st Street North	0.2	243	343	390	474
WEST FORK FOURMILE CREEK					
At mouth at Fourmile Creek	4.2	2,110	3,120	3,600	4,770
At 13th Street North	3.2	2,200	3,270	3,780	4,850
BROOKHAVEN CREEK					
At mouth at Fourmile Creek	4.0	2,470	3,620	4,180	5,420
At Interstate 35	1.8	2,190	3,190	3,780	5,170
MIDDLE FORK CHISHOLM CREEK					
Upstream of confluence of Tributary M1	11.7	2,980	5,280	6,190	8,920
At 53rd Street North	9.5	2,580	4,570	5,360	7,720
EAST FORK CHISHOLM CREEK					
At 45th Street North	1.6	860	1,270	1,545	2,240
CENTER DRAIN EAST TRIBUTARY					
At City of Wichita Corporate Limits	1.5	630	1,010	1,190	1,600

*data not available

AREA REVISED BY LOMR DATED 09/29/05

REVISED AREA

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
FOURMILE CREEK								
A	6354	608[2]	2815	2.9	1290.0	1290.0	1291.0	1.0
B	7254	248	1497	3.7	1291.1	1291.1	1292.0	0.9
C	9104	488	3217	1.7	1293.3	1293.3	1294.2	0.9
D	10,294	187	712	7.7	1293.4	1293.4	1294.4	1.0
E	10,949	144	562	9.8	1296.6	1296.6	1296.6	0.0
F	13,009	181	1306	4.2	1302.0	1302.0	1302.5	0.5
G	15,279	203	1291	4.3	1304.9	1304.9	1305.8	0.9
H	17,079	195	1094	5.0	1308.2	1308.2	1308.9	0.7
I	18,379	154	826	6.7	1312.2	1312.2	1312.5	0.3
J	18,931	158	1524	3.6	1316.8	1316.8	1316.8	0.0
K	20,111	292	2452	2.2	1317.0	1317.0	1317.3	0.3
L	21,966	246	1159	4.7	1317.6	1317.6	1318.5	0.9
M	22,866	253	1325	4.2	1321.6	1321.6	1322.5	0.9
N	23,766	200	1040	2.3	1322.9	1322.9	1323.9	1.0
O	25,766	153	723	3.3	1330.4	1330.4	1330.4	0.0
P	26,047	305	1949	1.2	1335.0	1335.0	1335.0	0.0
Q	27,847	138	359	6.6	1335.3	1335.3	1335.3	0.0
R	29,197	120	429	6.1	1339.6	1339.6	1339.0	0.4
S	29,852	118	635	3.2	1343.3	1343.3	1343.3	0.0
T	31,409	247	2236	0.7	1349.1	1349.1	1349.1	0.0
U	32,835	110	603	1.3	1352.3	1352.3	1352.3	0.0
V	33,623	220	2539	0.3	1354.7	1354.7	1354.7	0.0
W	34,402	50	148	4.7	1355.9	1355.9	1356.0	0.1
X	36,069	130	109	6.4	1360.2	1360.2	1360.2	0.0

REVISED AREA

[1] FEET ABOVE CONFLUENCE WITH SPRING BRANCH

[2] THIS WIDTH EXTENDS BEYOND COUNTY BOUNDARY

AREA REVISED BY LOMR DATED 09/29/05

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

SEDGWICK COUNTY, KS
(UNINCORPORATED AREAS)

FLOODWAY DATA

FOURMILE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
Unnamed Tributary to Fourmile Creek								
A	600	85	271	1.5	1351.5	1351.5	1351.5	0.0
B	938	33	66	6.0	1351.7	1351.7	1351.7	0.0
C	1489	52	287	1.4	1353.6	1353.6	1353.6	0.0
D	2011	105	82	5.2	1360.2	1360.2	1360.2	0.0
Unnamed Tributary 2 to Fourmile Creek								
A	1844	39	94	5.8	1355.3	1355.3	1355.3	0.0
B	3274	75	298	1.4	1360.8	1360.8	1361.0	0.2
C	4211	181	312	1.3	1361.7	1361.7	1361.7	0.0

REVISED AREA

REVISED AREA

AREA REVISED BY LOMR DATED 09/29/05

[1]Feet above confluence with Fourmile Creek

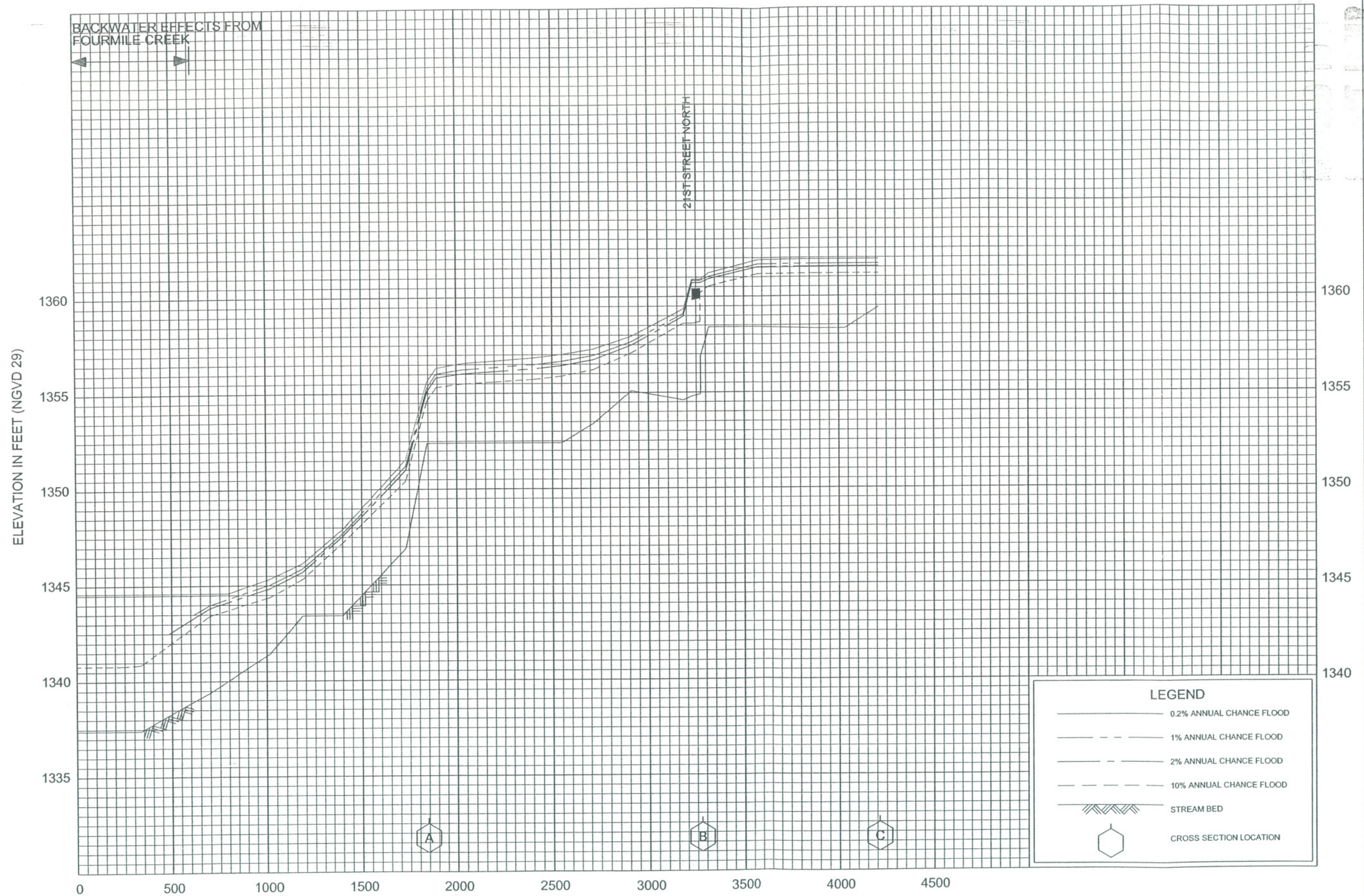
TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

SEDGWICK COUNTY, KS
(UNINCORPORATED AREAS)

FLOODWAY DATA

UNNAMED TRIBUTARY TO FOURMILE CREEK – UNNAMED TRIBUTARY 2 TO FOURMILE CREEK



FLOOD PROFILES

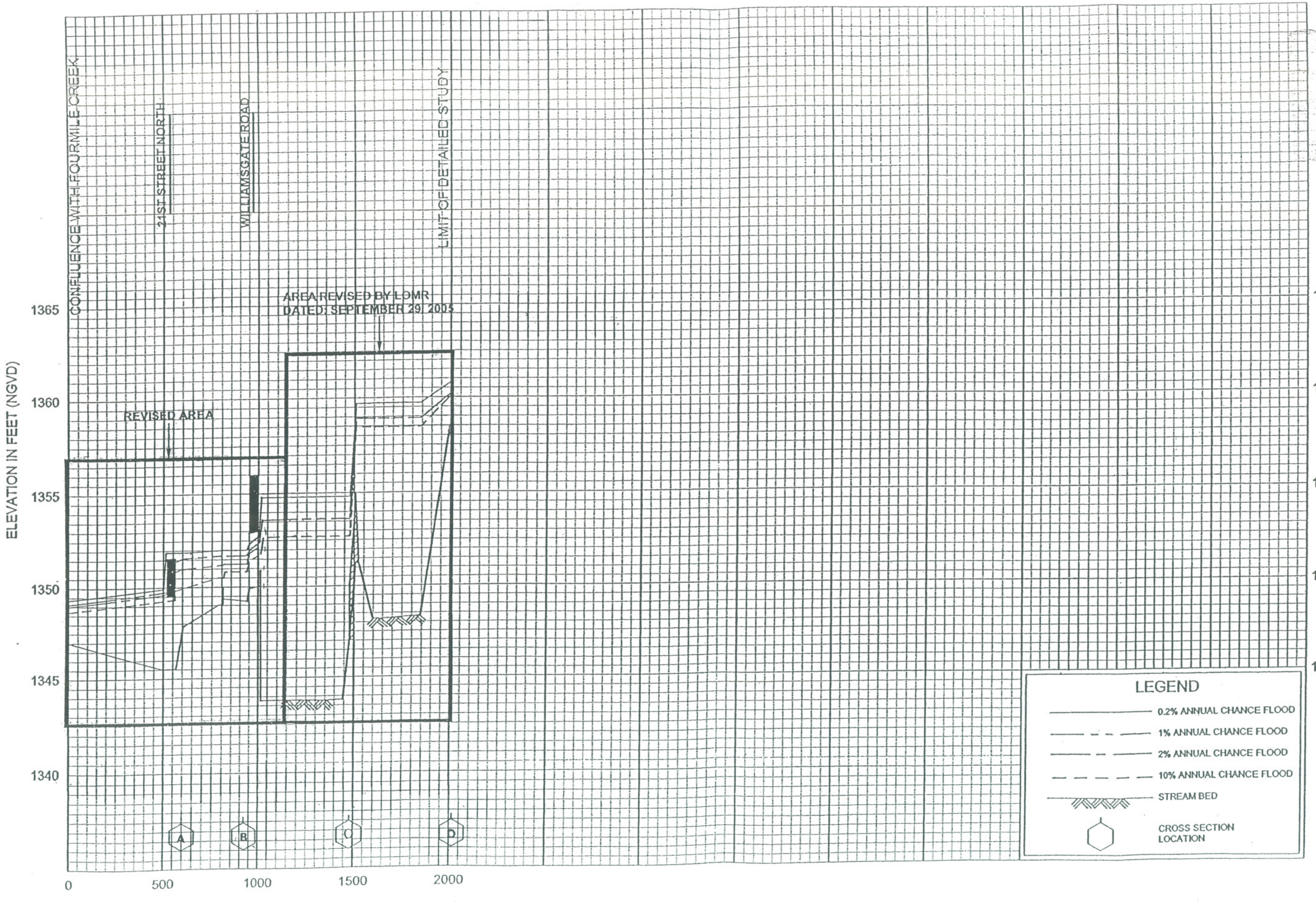
UNNAMED TRIBUTARY 2 TO FOURMILE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SEDGWICK COUNTY, KS

(UNINCORPORATED AREAS)

77P



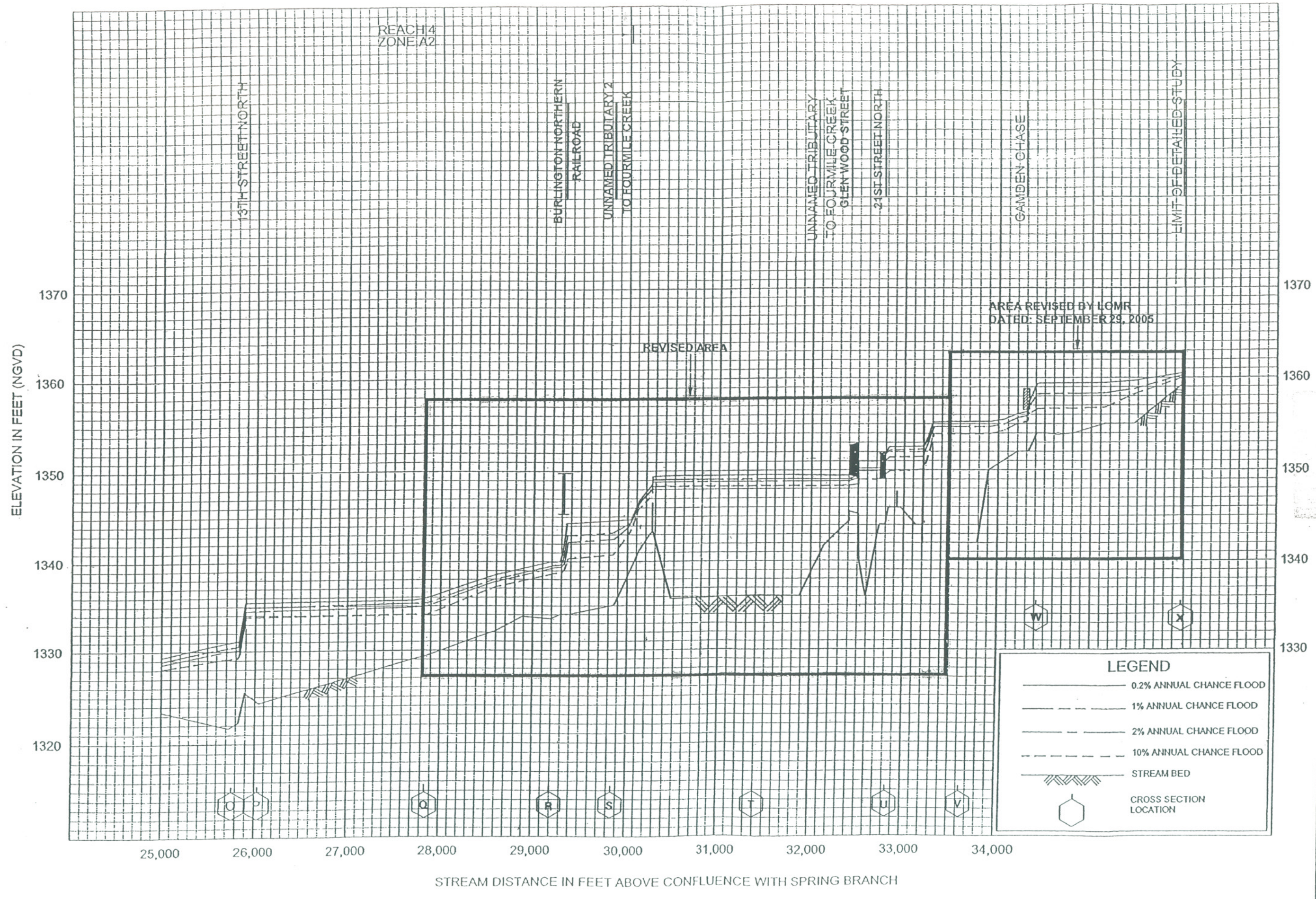
FLOOD PROFILES

UNNAMED TRIBUTARY TO FOURMILE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SEDGWICK COUNTY, KS

(UNINCORPORATED AREAS)



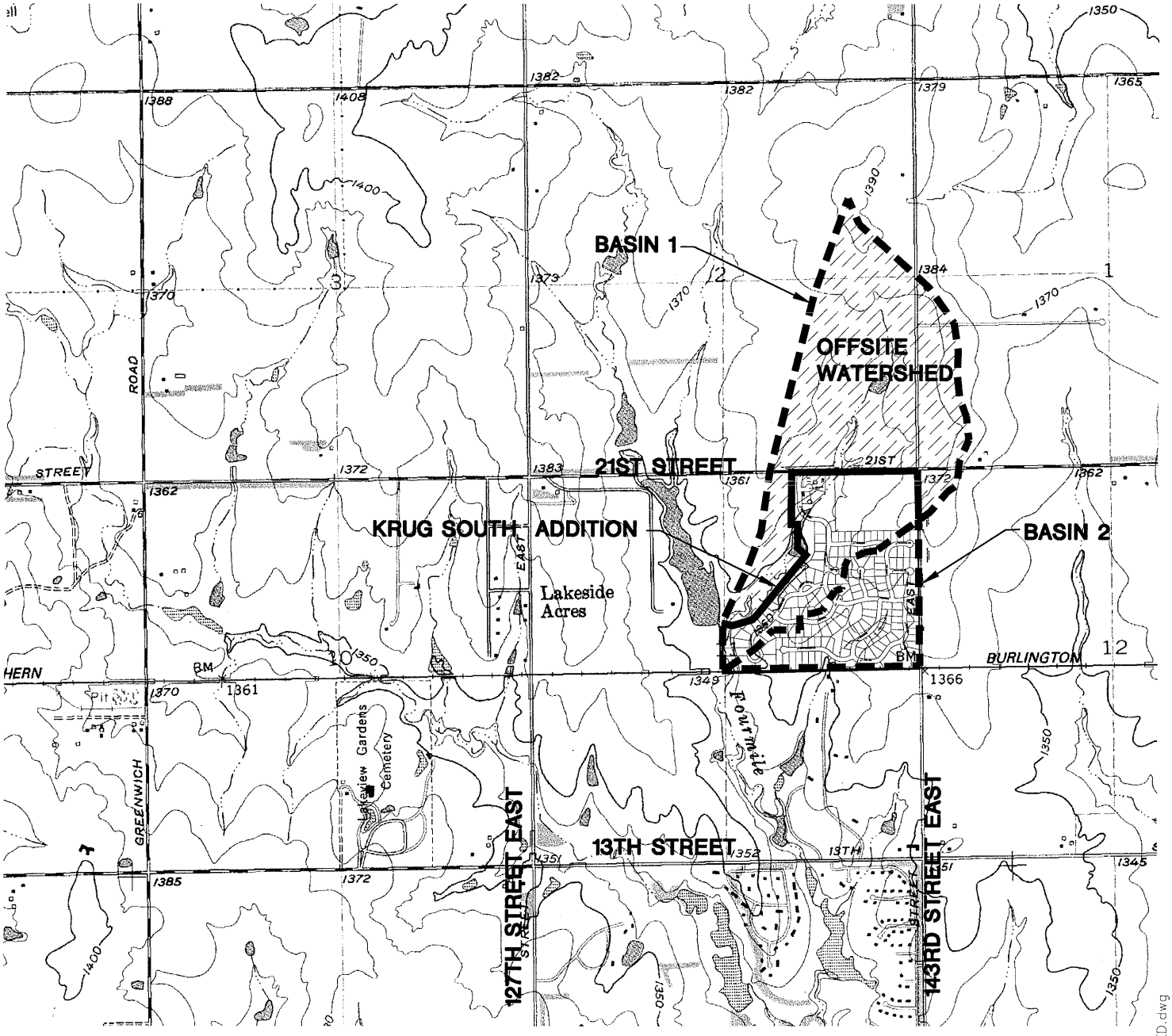
FLOOD PROFILES

FOURMILE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SEDGWICK COUNTY, KS
(UNINCORPORATED AREAS)

Appendix E
Pre and Post-Project Watershed Boundary



SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

N

REVISED: 12/19/06 COW COMMENTS

J:\Civil\05291\dwg\drng\POST_WATERSHED.dwg

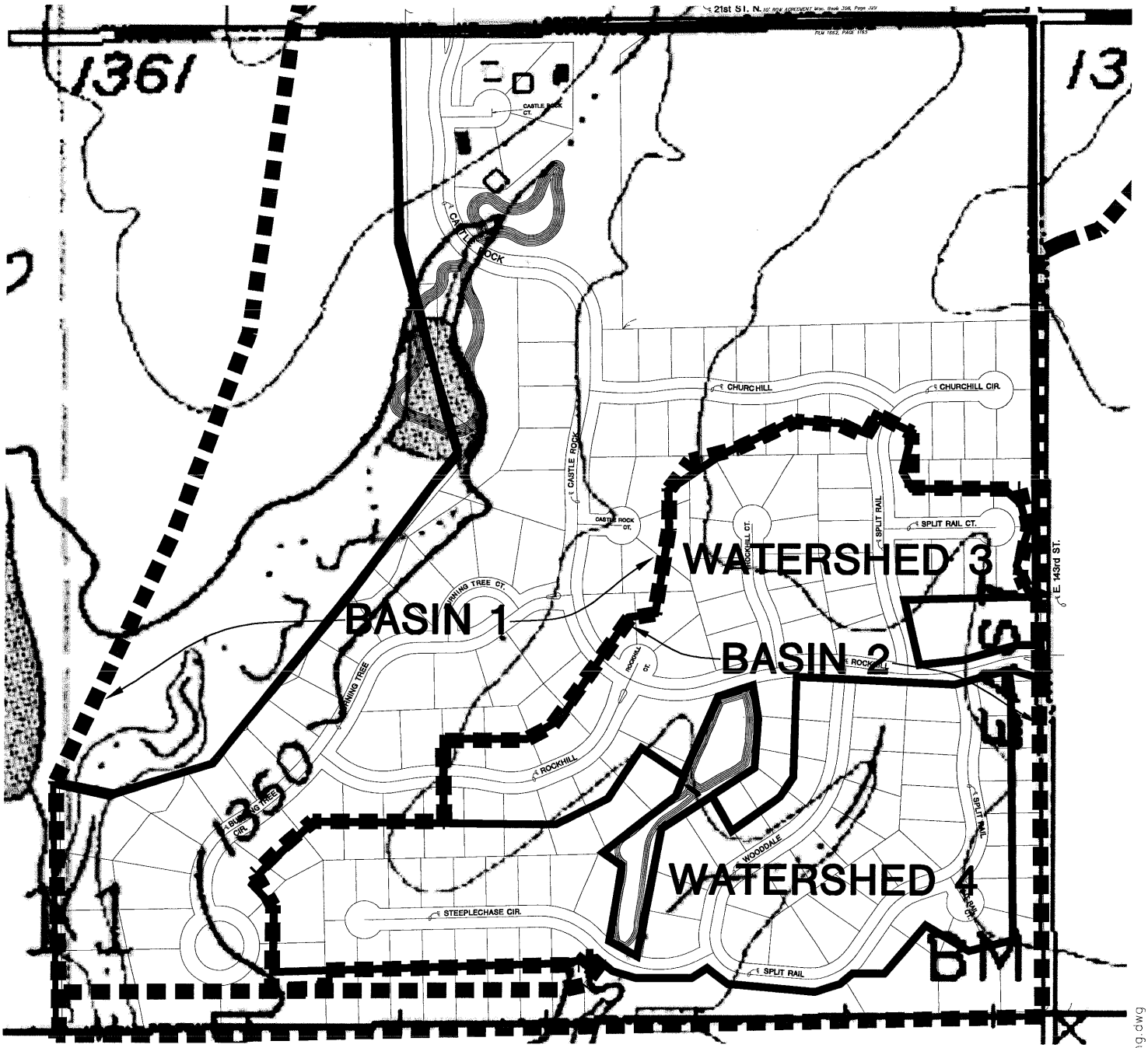
MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

KRUG SOUTH ADDITION
PROJECT NAME

PRE\POST-PROJECT WATERSHED MAP ANDOVER, KANSAS QUADRANGLE
SHEET TITLE

TMH	CMJ	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:

NOVEMBER 2006	05291	1 / 2
DATE	JOB NO.	SHEET/OF



SCALE: 1"=400'

400 0 400 800

N

NOTE: OFFSITE WATERSHED REMAINS UNCHANGED FROM PRE TO POST-PROEJCT

REVISED: 01/05/07 - COW COMMENTS

J:\Civil\05291\dwg\drng\POST_drawing.dwg

MKEC ENGINEERING CONSULTANTS, INC.

411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

KRUG SOUTH ADDITION
PROJECT NAME

POST-PROJECT ON-SITE WATERSHEDS ANDOVER, KANSAS QUADRANGLE
SHEET TITLE

TMH	CMJ	GJA
DESIGN BY:	DRAWN BY:	CHECKED BY:

NOVEMBER 2006	05291	2 / 2
DATE	JOB NO.	SHEET/OF

Appendix F
TR-20 Output and Hydraflow Hydrographs

TR-20 Pre-Project

```
1


 *****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

 JOB TR-20                      FULLPRINT           SUMMARY   NOPLOTS
 TITLE 001 krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  SEPT 20
 TITLE     krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZONE 5
 4 DIMHYD               0.020                                              484
  8          .000        .030        .100        .190        .310
  8          .470        .660        .820        .930        .990
  8         1.000        .990        .930        .860        .780
  8          .680        .560        .460        .390        .330
  8          .280        .241        .207        .174        .147
  8          .126        .107        .091        .077        .066
  8          .055        .047        .040        .034        .029
  8          .025        .021        .018        .015        .013
  8          .011        .009        .008        .007        .006
  8          .005        .004        .003        .002        .001
  8          .000        .000        .000        .000        .000
  9 ENDTBL
  5 RAINFL 7             0.5
  8          .000        .002        .005        .009        .013
  8          .018        .023        .029        .035        .042
  8          .050        .059        .068        .078        .089
  8          .101        .114        .128        .144        .162
  8          .183        .208        .244        .339        .723
  8          .773        .802        .825        .844        .861
  8          .876        .890        .903        .914        .924
  8          .934        .943        .951        .959        .966
  8          .972        .977        .982        .986        .990
  8          .993        .996        .998       1.000       1.000
  9 ENDTBL
  3 STRUCT      01
  8                      1354.0      0.0         0.0
  8                      1355.0      0.1         1.446
  8                      1356.0      68.         3.249
  8                      1357.0      396.        5.367
  8                      1358.0      614.        8.605
  8                      1359.0      850.        13.269
  8                      1360.0      1105.       18.403
  9 ENDTBL
  3 STRUCT      02
  8                      1350.0      0.0         0.0
  8                      1351.0      0.1         2.782
  8                      1352.0      0.2         5.798
  8                      1353.0      190.        9.054
  8                      1354.0      527.        12.578
  8                      1355.0      958.        16.756
  9 ENDTBL
  3 STRUCT      03
  8                      1355.0      0.0         0.0
  8                      1356.0      6.7         1.273
  8                      1357.0      19.         2.683
  8                      1358.0      181.        4.271
1


 *********************80-80 LIST OF INPUT DATA (CONTINUED)**********************

  8                      1359.0      468.        6.149
```

```
  8                       1360.0      836.        8.327
  9 ENDTBL
  3 STRUCT      04
  8                       1351.0      0.0         0.0
  8                       1352.0      65.         1.447
  8                       1353.0      180.        3.069
  8                       1354.0      325.        4.866
  8                       1355.0      470.        6.842
  8                       1356.0      615.        9.023
  9 ENDTBL
  3 STRUCT      05
  8                       1345.0      0.0         0.0
  8                       1346.0      2.4         11.365
  8                       1347.0      12.2        23.877
  8                       1348.0      154.        37.745
  8                       1349.0      705.        54.585
  8                       1350.0      1485.       75.165
  8                       1351.0      2441.       97.658
  9 ENDTBL
  6 RUNOFF 1 001        1 0.4906      81.0        2.3250                1
  6 RUNOFF 1 002        2 0.1375      82.4        1.075                 1
  6 RUNOFF 1 003        3 0.0688      87.0        0.50                  1
  6 ADDHYD 4 004    1 2 4                                             1
  6 ADDHYD 4 005    3 4 5                                             1
  6 RESVOR 2    01 5    6 1354.0                                      1
  6 RUNOFF 1 006        7 0.0628      88.0        0.4167                1
  6 ADDHYD 4 007    6 7 4                                             1
  6 RUNOFF 1 008        5 0.0245      81.0        0.6667                1
  6 ADDHYD 4 009    4 5 6                                             1
  6 RESVOR 2    02 6    7 1350.0                                      1
  6 RUNOFF 1 010        4 0.1814      81.0        1.205                 1
  6 RUNOFF 1 011        5 0.0523      87.0        0.50                  1
  6 ADDHYD 4 012    4 5 6                                             1
  6 RESVOR 2    03 6    4 1355.0                                      1
  6 RUNOFF 1 013        5 0.0159      87.0        0.333                 1
  6 ADDHYD 4 014    4 5 6                                             1
  6 RESVOR 2    04 6    4 1351.0                                      1
  6 RUNOFF 1 015        5 0.0133      87.0        0.250                 1
  6 ADDHYD 4 016    4 5 6                                             1
  6 RUNOFF 1 017        4 0.0281      88.0        0.333                 1
  6 ADDHYD 4 018    4 6 5                                             1
  6 ADDHYD 4 019    5 7 6                                             1
  6 RUNOFF 1 020        4 0.1167      88.0        0.500                 1
  6 RUNOFF 1 021        5 0.1406      81.0        1.267                 1
  6 ADDHYD 4 022    6 4 7                                             1
  6 ADDHYD 4 023    7 5 4                                             1
  6 RESVOR 2    05 4    6 1345.5                                      1
  6 RUNOFF 1 024        5 0.4016      85.4        1.5167                1
  6 RUNOFF 1 025        7 0.0317      81.0        0.333                 1
1
```

```
 ********************80-80 LIST OF INPUT DATA (CONTINUED)**********************

  6 ADDHYD 4 026    6 5 4                                             1
  6 ADDHYD 4 027    4 7 6                                             1
    ENDATA
  7 INCREM 6              0.10
  7 COMPUT 7 001    027   0.0         3.50        1.0         7 2  11  01
    ENDCMP 1
  7 COMPUT 7 001    027   0.0         4.55        1.0         7 2  12  02
    ENDCMP 1
```

```
 7 COMPUT 7 001   027   0.0         5.25        1.0         7 2  13  03
   ENDCMP 1
 7 COMPUT 7 001   027   0.0         7.80        1.0         7 2  14  04
   ENDCMP 1
 7 COMPUT 7 001   027   0.0         9.35        1.0         7 2  15  05
   ENDCMP 1
   ENDJOB 2
```

**********END OF 80-80 LIST**********

1

COMPUTER PROGRAM FOR PROJECT FORMULATION - HYDROLOGY USER NOTES

The Users' Manual for this program is SCS Technical Release 20 (TR-20), dated April 1990. The TR-20 program is no longer supported on the mainframe since all post 1986 program changes have only been in the IBM compatable microcomputer environnment.

Compatable input and data check programs are TR20INPT.EXE, version III, dated 01/30/90 and TR20CK.EXE, version II, which is forthcoming.

Major changes from the 1986 TR-20 microcomputer version are:

HYDROGRAPH GENERATION: program procedure to develop runoff hydrographs revised to preserve total hydrograph volume as well as the peak discharge. Hydrographs can contain up to four hundred main time increment points from the beginning of runoff.

ATTKIN ROUTING: seperate channel and floodplain lengths can be entered to define additional storage in meandering channels below the representative low ground elevation. Program changes have been made to better handle multiple peaked hydrographs.

FLOW DURATION: can be obtained if requested.

OUTPUT 80 COLUMNS: Output fits 80 column paper. Hydrograph coordinates over 100 cfs are rounded and shown as whole numbers.

ERRORS, WARNINGS, AND MESSAGES: expanded and updated.

LIST OPTIONS: can print all or selected parts of input data.

INTERMEDIATE PEAKS: requires new IPEAKS record.

1

```
  DIMENSIONLESS HYDROGRAPH TABLE ENTERED
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8                .4700       .6600       .8200       .9300       .9900
8               1.0000       .9900       .9300       .8600       .7800
8                .6800       .5600       .4600       .3900       .3300
8                .2800       .2410       .2070       .1740       .1470
8                .1260       .1070       .0910       .0770       .0660
8                .0550       .0470       .0400       .0340       .0290
8                .0250       .0210       .0180       .0150       .0130
8                .0110       .0090       .0080       .0070       .0060
8                .0050       .0040       .0030       .0020       .0010
8                .0000       .0000       .0000       .0000       .0000
9 ENDTBL

            COMPUTED TIME INCREMENT   =     .0200

            COMPUTED PEAK RATE FACTOR =  484.000

1
 TR20 ------------------------------------------------------------------------ SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   1   JOB NO.   1                      PAGE   3


 EXECUTIVE CONTROL INCREM    MAIN TIME INCREMENT =   .100 HOURS


 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  27
    STARTING TIME =   .00       RAIN DEPTH =  3.50       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. =11           STORM NO. = 1            RAIN TABLE NO. = 7


 OPERATION RUNOFF   XSECTION   1
         OUTPUT HYDROGRAPH =  1      AREA =    .49 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  2.33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .1033 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.22                         165.0                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.71 WATERSHED INCHES;     541 CFS-HRS;      44.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   2
         OUTPUT HYDROGRAPH =  2      AREA =    .14 SQ MI
         INPUT RUNOFF CURVE = 82.    TIME OF CONCENTRATION =  1.08 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0992 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.43                          83.6                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.81 WATERSHED INCHES;     161 CFS-HRS;      13.3 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3
         OUTPUT HYDROGRAPH =  3      AREA =    .07 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
```

COMPUTED INTERNAL TIME INCREMENT = .0667 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	75.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.18 WATERSHED INCHES; 97 CFS-HRS; 8.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 4
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 PASS 1 JOB NO. 1 PAGE 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.91	206.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.73 WATERSHED INCHES; 701 CFS-HRS; 58.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 5
INPUT HYDROGRAPHS 3,4 OUTPUT HYDROGRAPH 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.76	220.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.77 WATERSHED INCHES; 798 CFS-HRS; 66.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 1
INPUT HYDROGRAPH 5 OUTPUT HYDROGRAPH 6
SURFACE ELEVATION = 1354.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.84	220.2	1356.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.74 WATERSHED INCHES; 783 CFS-HRS; 64.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 6
OUTPUT HYDROGRAPH = 7 AREA = .06 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .42 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0556 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	75.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.27 WATERSHED INCHES; 92 CFS-HRS; 7.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 7
INPUT HYDROGRAPHS 6,7 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	242.9	(NULL)

```
1
 TR20 ------------------------------------------------------------------- SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   1   JOB NO.   1                      PAGE   5


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.78 WATERSHED INCHES;     874 CFS-HRS;      72.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   8
         OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .67 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0889 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.19                         18.2                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.70 WATERSHED INCHES;      27 CFS-HRS;       2.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   9
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.25                         262.6                      (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.78 WATERSHED INCHES;     901 CFS-HRS;      74.5 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 7
         SURFACE ELEVATION =  1350.00

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.73                         240.3                       1353.15

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.65 WATERSHED INCHES;     833 CFS-HRS;      68.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  10
         OUTPUT HYDROGRAPH =  4      AREA =    .18 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.21 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0964 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.52                         96.6                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.71 WATERSHED INCHES;     200 CFS-HRS;      16.5 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   1   JOB NO.   1                      PAGE   6


 OPERATION RUNOFF   XSECTION  11
```

OUTPUT HYDROGRAPH = 5 AREA = .05 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0667 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	57.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.18 WATERSHED INCHES; 74 CFS-HRS; 6.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 12
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.29	128.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.81 WATERSHED INCHES; 273 CFS-HRS; 22.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 3
INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 4
SURFACE ELEVATION = 1355.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	122.8	1357.64

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.81 WATERSHED INCHES; 274 CFS-HRS; 22.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 13
OUTPUT HYDROGRAPH = 5 AREA = .02 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0444 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	19.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.18 WATERSHED INCHES; 22 CFS-HRS; 1.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 14
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 PASS 1 JOB NO. 1 PAGE 7

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	128.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.84 WATERSHED INCHES; 296 CFS-HRS; 24.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 4
INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 4
SURFACE ELEVATION = 1351.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.67	118.3	1352.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.84 WATERSHED INCHES; 296 CFS-HRS; 24.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 15
OUTPUT HYDROGRAPH = 5 AREA = .01 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .25 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0333 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.97	17.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.18 WATERSHED INCHES; 19 CFS-HRS; 1.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 16
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.66	120.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.85 WATERSHED INCHES; 314 CFS-HRS; 26.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 17
OUTPUT HYDROGRAPH = 4 AREA = .03 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0444 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	35.4	(RUNOFF)

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 PASS 1 JOB NO. 1 PAGE 8

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.26 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 18
INPUT HYDROGRAPHS 4,6 OUTPUT HYDROGRAPH 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.63	126.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.89 WATERSHED INCHES; 356 CFS-HRS; 29.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 19
INPUT HYDROGRAPHS 5,7 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.67	365.6	(NULL)

```
   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                1.71 WATERSHED INCHES;    1189 CFS-HRS;      98.3 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20
         OUTPUT HYDROGRAPH =  4      AREA =    .12 SQ MI
         INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .50 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.10                         131.5                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.27 WATERSHED INCHES;     171 CFS-HRS;      14.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  21
         OUTPUT HYDROGRAPH =  5      AREA =    .14 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.27 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .1014 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.56                          72.2                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                1.71 WATERSHED INCHES;     155 CFS-HRS;      12.8 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                   PASS   1   JOB NO.   1                      PAGE   9



 OPERATION ADDHYD   XSECTION  22
         INPUT HYDROGRAPHS 6,4     OUTPUT HYDROGRAPH 7

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.55                         407.2                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                1.77 WATERSHED INCHES;    1360 CFS-HRS;     112.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23
         INPUT HYDROGRAPHS 7,5     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.55                         478.3                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                1.76 WATERSHED INCHES;    1515 CFS-HRS;     125.2 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  5
         INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 6
         SURFACE ELEVATION =  1345.50

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      13.43                         327.4                        1348.31

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
```

1.66 WATERSHED INCHES; 1425 CFS-HRS; 117.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 24
OUTPUT HYDROGRAPH = 5 AREA = .40 SQ MI
INPUT RUNOFF CURVE = 85. TIME OF CONCENTRATION = 1.52 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0958 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.69	222.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.05 WATERSHED INCHES; 531 CFS-HRS; 43.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 7 AREA = .03 SQ MI
INPUT RUNOFF CURVE = 81. TIME OF CONCENTRATION = .33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0444 HOURS

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 PASS 1 JOB NO. 1 PAGE 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	30.5	(RUNOFF)
17.40	1.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.71 WATERSHED INCHES; 35 CFS-HRS; 2.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26
INPUT HYDROGRAPHS 6,5 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.20	474.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.75 WATERSHED INCHES; 1956 CFS-HRS; 161.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 27
INPUT HYDROGRAPHS 4,7 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.20	477.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.75 WATERSHED INCHES; 1991 CFS-HRS; 164.5 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 PASS 2 JOB NO. 1 PAGE 11

```
 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  27
    STARTING TIME =   .00       RAIN DEPTH =  4.55       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. =12           STORM NO. = 2            RAIN TABLE NO. = 7


 OPERATION RUNOFF   XSECTION   1
         OUTPUT HYDROGRAPH =  1      AREA =    .49 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  2.33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .1033 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.20                         253.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.59 WATERSHED INCHES;     820 CFS-HRS;      67.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   2
         OUTPUT HYDROGRAPH =  2      AREA =    .14 SQ MI
         INPUT RUNOFF CURVE = 82.    TIME OF CONCENTRATION =  1.08 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0992 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.43                         125.3                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.71 WATERSHED INCHES;     241 CFS-HRS;      19.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3
         OUTPUT HYDROGRAPH =  3      AREA =    .07 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.09                         107.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.14 WATERSHED INCHES;     140 CFS-HRS;      11.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   4
         INPUT HYDROGRAPHS 1,2     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.89                         316.3                       (NULL)
1
 TR20 ---------------------------------------------------------------------- SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   2   JOB NO.   1                      PAGE  12


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.62 WATERSHED INCHES;    1061 CFS-HRS;      87.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   5
         INPUT HYDROGRAPHS 3,4     OUTPUT HYDROGRAPH 5

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.75                         336.7                       (NULL)
```

```
   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.67 WATERSHED INCHES;    1201 CFS-HRS;      99.2 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  1
        INPUT HYDROGRAPH 5        OUTPUT HYDROGRAPH 6
        SURFACE ELEVATION =  1354.00

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.83                         335.8                       1356.82

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.64 WATERSHED INCHES;    1185 CFS-HRS;      97.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   6
        OUTPUT HYDROGRAPH =  7      AREA =    .06 SQ MI
        INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .42 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0556 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.06                         106.9                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.24 WATERSHED INCHES;     131 CFS-HRS;      10.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   7
        INPUT HYDROGRAPHS 6,7     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.25                         367.8                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.69 WATERSHED INCHES;    1317 CFS-HRS;     108.8 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------------ SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   2   JOB NO.   1                      PAGE  13



 OPERATION RUNOFF   XSECTION   8
        OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .67 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0889 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.19                          28.0                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.59 WATERSHED INCHES;      41 CFS-HRS;       3.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   9
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.24                         395.3                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
```

2.68 WATERSHED INCHES; 1358 CFS-HRS; 112.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 2
INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 7
SURFACE ELEVATION = 1350.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.47	376.0	1353.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.55 WATERSHED INCHES; 1289 CFS-HRS; 106.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 10
OUTPUT HYDROGRAPH = 4 AREA = .18 SQ MI
INPUT RUNOFF CURVE = 81. TIME OF CONCENTRATION = 1.21 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.51	147.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.59 WATERSHED INCHES; 303 CFS-HRS; 25.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 11
OUTPUT HYDROGRAPH = 5 AREA = .05 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0667 HOURS

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 PASS 2 JOB NO. 1 PAGE 14

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	81.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.14 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 12
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.29	193.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.71 WATERSHED INCHES; 409 CFS-HRS; 33.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 3
INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 4
SURFACE ELEVATION = 1355.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	189.2	1358.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.71 WATERSHED INCHES; 409 CFS-HRS; 33.8 ACRE-FEET.

```
 OPERATION RUNOFF   XSECTION  13
        OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                        27.5                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.14 WATERSHED INCHES;      32 CFS-HRS;       2.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  14
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.39                        196.9                      (NULL)
1
 TR20 ------------------------------------------------------------------------ SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   2   JOB NO.   1                      PAGE  15


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.74 WATERSHED INCHES;     442 CFS-HRS;      36.5 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  4
        INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
        SURFACE ELEVATION =  1351.00

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.59                        185.5                      1353.04

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.74 WATERSHED INCHES;     442 CFS-HRS;      36.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  15
        OUTPUT HYDROGRAPH =  5      AREA =    .01 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .25 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0333 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.97                        24.3                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.15 WATERSHED INCHES;      27 CFS-HRS;       2.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  16
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.58                        189.0                      (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.76 WATERSHED INCHES;     469 CFS-HRS;      38.7 ACRE-FEET.
```

```
 OPERATION RUNOFF   XSECTION  17
         OUTPUT HYDROGRAPH =  4      AREA =    .03 SQ MI
         INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                        49.8                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.24 WATERSHED INCHES;      59 CFS-HRS;       4.9 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   2   JOB NO.   1                       PAGE  16



 OPERATION ADDHYD   XSECTION  18
         INPUT HYDROGRAPHS 4,6     OUTPUT HYDROGRAPH 5

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.54                        198.6                      (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.81 WATERSHED INCHES;     527 CFS-HRS;      43.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  19
         INPUT HYDROGRAPHS 5,7     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.51                        573.9                      (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.62 WATERSHED INCHES;    1816 CFS-HRS;     150.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20
         OUTPUT HYDROGRAPH =  4      AREA =    .12 SQ MI
         INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .50 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.09                        186.3                      (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.24 WATERSHED INCHES;     244 CFS-HRS;      20.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  21
         OUTPUT HYDROGRAPH =  5      AREA =    .14 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.27 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .1014 HOURS

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.55                        110.4                      (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.59 WATERSHED INCHES;     235 CFS-HRS;      19.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  22
```

```
        INPUT HYDROGRAPHS 6,4     OUTPUT HYDROGRAPH 7
1
 TR20 ------------------------------------------------------------------- SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   2   JOB NO.   1                     PAGE  17


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.31                         685.2                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.68 WATERSHED INCHES;    2060 CFS-HRS;     170.3 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23
        INPUT HYDROGRAPHS 7,5     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.34                         783.5                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.67 WATERSHED INCHES;    2295 CFS-HRS;     189.7 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  5
        INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 6
        SURFACE ELEVATION =  1345.50

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.08                         597.7                        1348.81

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.56 WATERSHED INCHES;    2203 CFS-HRS;     182.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  24
        OUTPUT HYDROGRAPH =  5      AREA =    .40 SQ MI
        INPUT RUNOFF CURVE = 85.    TIME OF CONCENTRATION =  1.52 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0958 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.68                         325.3                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.99 WATERSHED INCHES;     776 CFS-HRS;      64.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  25
        OUTPUT HYDROGRAPH =  7      AREA =    .03 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                          46.1                       (RUNOFF)
       17.36                           1.6                       (RUNOFF)
1
 TR20 ------------------------------------------------------------------- SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   2   JOB NO.   1                     PAGE  18
```

```
   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.59 WATERSHED INCHES;      53 CFS-HRS;       4.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  26
        INPUT HYDROGRAPHS 6,5     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.92                         888.0                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.66 WATERSHED INCHES;    2979 CFS-HRS;     246.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  27
        INPUT HYDROGRAPHS 4,7     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.91                         893.0                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.66 WATERSHED INCHES;    3032 CFS-HRS;     250.5 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   2
1
 TR20 ------------------------------------------------------------------------ SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   3   JOB NO.   1                      PAGE  19



 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  27
    STARTING TIME =   .00       RAIN DEPTH =  5.25       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. =13           STORM NO. = 3            RAIN TABLE NO. = 7


 OPERATION RUNOFF   XSECTION   1
        OUTPUT HYDROGRAPH =  1      AREA =    .49 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  2.33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .1033 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      13.19                         314.2                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.21 WATERSHED INCHES;    1016 CFS-HRS;      83.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   2
        OUTPUT HYDROGRAPH =  2      AREA =    .14 SQ MI
        INPUT RUNOFF CURVE = 82.    TIME OF CONCENTRATION =  1.08 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0992 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.43                         153.9                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.34 WATERSHED INCHES;     296 CFS-HRS;      24.5 ACRE-FEET.
```

```
 OPERATION RUNOFF   XSECTION   3
         OUTPUT HYDROGRAPH =  3      AREA =    .07 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.09                        127.9                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.80 WATERSHED INCHES;     169 CFS-HRS;      13.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   4
         INPUT HYDROGRAPHS 1,2     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.88                        392.5                       (NULL)
1
 TR20 ------------------------------------------------------------------------ SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   3   JOB NO.   1                      PAGE  20


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.24 WATERSHED INCHES;    1312 CFS-HRS;     108.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   5
         INPUT HYDROGRAPHS 3,4     OUTPUT HYDROGRAPH 5

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.74                        416.9                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.29 WATERSHED INCHES;    1481 CFS-HRS;     122.4 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  1
         INPUT HYDROGRAPH 5        OUTPUT HYDROGRAPH 6
         SURFACE ELEVATION =  1354.00

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.90                        412.8                        1357.08

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.26 WATERSHED INCHES;    1465 CFS-HRS;     121.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   6
         OUTPUT HYDROGRAPH =  7      AREA =    .06 SQ MI
         INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .42 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0556 HOURS

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.06                        127.6                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.90 WATERSHED INCHES;     158 CFS-HRS;      13.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   7
         INPUT HYDROGRAPHS 6,7     OUTPUT HYDROGRAPH 4
```

```
   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.25                        450.4                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.31 WATERSHED INCHES;    1623 CFS-HRS;     134.1 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   3   JOB NO.   1                      PAGE  21



 OPERATION RUNOFF   XSECTION   8
        OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .67 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0889 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.19                         34.2                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.20 WATERSHED INCHES;      51 CFS-HRS;       4.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   9
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.24                        486.0                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.31 WATERSHED INCHES;    1674 CFS-HRS;     138.3 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2
        INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 7
        SURFACE ELEVATION =  1350.00

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.43                        467.4                      1353.82

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.17 WATERSHED INCHES;    1605 CFS-HRS;     132.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  10
        OUTPUT HYDROGRAPH =  4      AREA =    .18 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.21 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0964 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.50                        183.4                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.21 WATERSHED INCHES;     376 CFS-HRS;      31.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  11
        OUTPUT HYDROGRAPH =  5      AREA =    .05 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS
```

```
1
 TR20 ------------------------------------------------------------------- SCS -
        krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   3   JOB NO.   1                      PAGE  22


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.09                         97.2                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.80 WATERSHED INCHES;     128 CFS-HRS;      10.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  12
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.29                         238.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.34 WATERSHED INCHES;     504 CFS-HRS;      41.6 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  3
        INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
        SURFACE ELEVATION =  1355.00

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.39                         234.7                        1358.19

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.34 WATERSHED INCHES;     504 CFS-HRS;      41.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  13
        OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                          33.0                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.80 WATERSHED INCHES;      39 CFS-HRS;       3.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  14
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.34                         246.6                       (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
        krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   3   JOB NO.   1                      PAGE  23


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.37 WATERSHED INCHES;     543 CFS-HRS;      44.9 ACRE-FEET.
```

```
 OPERATION RESVOR   STRUCTURE  4
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
         SURFACE ELEVATION =  1351.00

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.53                        233.7                       1353.37

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.37 WATERSHED INCHES;     543 CFS-HRS;      44.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  15
         OUTPUT HYDROGRAPH =  5      AREA =    .01 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .25 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0333 HOURS

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       11.97                         29.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.79 WATERSHED INCHES;      33 CFS-HRS;       2.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  16
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.53                        238.1                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.39 WATERSHED INCHES;     575 CFS-HRS;      47.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  17
         OUTPUT HYDROGRAPH =  4      AREA =    .03 SQ MI
         INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                         59.5                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.90 WATERSHED INCHES;      71 CFS-HRS;       5.9 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   3   JOB NO.   1                      PAGE  24


 OPERATION ADDHYD   XSECTION  18
         INPUT HYDROGRAPHS 4,6     OUTPUT HYDROGRAPH 5

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.48                        250.8                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.44 WATERSHED INCHES;     646 CFS-HRS;      53.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  19
         INPUT HYDROGRAPHS 5,7     OUTPUT HYDROGRAPH 6
```

```
   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.45                        717.6                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.24 WATERSHED INCHES;    2251 CFS-HRS;     186.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20
        OUTPUT HYDROGRAPH =  4      AREA =    .12 SQ MI
        INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .50 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.09                        221.7                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.90 WATERSHED INCHES;     294 CFS-HRS;      24.3 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  21
        OUTPUT HYDROGRAPH =  5      AREA =    .14 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.27 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .1014 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.54                        136.7                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.21 WATERSHED INCHES;     291 CFS-HRS;      24.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  22
        INPUT HYDROGRAPHS 6,4     OUTPUT HYDROGRAPH 7
1
 TR20 ------------------------------------------------------------------- SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   3   JOB NO.   1                       PAGE  25


   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.26                        865.3                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.31 WATERSHED INCHES;    2545 CFS-HRS;     210.3 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23
        INPUT HYDROGRAPHS 7,5     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.31                        982.9                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.30 WATERSHED INCHES;    2836 CFS-HRS;     234.4 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  5
        INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 6
        SURFACE ELEVATION =  1345.50

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
```

```
      12.94                          782.5                          1349.10

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.19 WATERSHED INCHES;    2740 CFS-HRS;     226.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  24
        OUTPUT HYDROGRAPH =  5      AREA =    .40 SQ MI
        INPUT RUNOFF CURVE = 85.    TIME OF CONCENTRATION =  1.52 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0958 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.67                          394.4                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.64 WATERSHED INCHES;     944 CFS-HRS;      78.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  25
        OUTPUT HYDROGRAPH =  7      AREA =    .03 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                           56.7                       (RUNOFF)
1
 TR20 ------------------------------------------------------------------------ SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   3   JOB NO.   1                       PAGE  26


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.21 WATERSHED INCHES;      66 CFS-HRS;       5.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  26
        INPUT HYDROGRAPHS 6,5     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.83                         1157.0                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.29 WATERSHED INCHES;    3683 CFS-HRS;     304.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  27
        INPUT HYDROGRAPHS 4,7     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.83                         1163.5                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.29 WATERSHED INCHES;    3749 CFS-HRS;     309.8 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   3
1
 TR20 ------------------------------------------------------------------------ SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   4   JOB NO.   1                       PAGE  27
```

```
 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  27
    STARTING TIME =   .00       RAIN DEPTH =  7.80       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. =14           STORM NO. = 4            RAIN TABLE NO. = 7


 OPERATION RUNOFF   XSECTION   1
         OUTPUT HYDROGRAPH =  1      AREA =    .49 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  2.33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .1033 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.17                         541.8                      (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.55 WATERSHED INCHES;    1758 CFS-HRS;     145.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   2
         OUTPUT HYDROGRAPH =  2      AREA =    .14 SQ MI
         INPUT RUNOFF CURVE = 82.    TIME OF CONCENTRATION =  1.08 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0992 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.42                         259.7                      (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.71 WATERSHED INCHES;     507 CFS-HRS;      41.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3
         OUTPUT HYDROGRAPH =  3      AREA =    .07 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.09                         205.2                      (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   6.25 WATERSHED INCHES;     278 CFS-HRS;      22.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   4
         INPUT HYDROGRAPHS 1,2     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.85                         676.6                      (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   4   JOB NO.   1                       PAGE  28


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   5.59 WATERSHED INCHES;    2264 CFS-HRS;     187.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   5
         INPUT HYDROGRAPHS 3,4     OUTPUT HYDROGRAPH 5
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.73	716.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.65 WATERSHED INCHES; 2542 CFS-HRS; 210.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 1
INPUT HYDROGRAPH 5 OUTPUT HYDROGRAPH 6
SURFACE ELEVATION = 1354.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.96	701.0	1358.37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.62 WATERSHED INCHES; 2526 CFS-HRS; 208.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 6
OUTPUT HYDROGRAPH = 7 AREA = .06 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .42 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0556 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	202.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.37 WATERSHED INCHES; 258 CFS-HRS; 21.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 7
INPUT HYDROGRAPHS 6,7 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.33	706.9	(NULL)
12.88	723.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.68 WATERSHED INCHES; 2784 CFS-HRS; 230.1 ACRE-FEET.

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 PASS 4 JOB NO. 1 PAGE 29

OPERATION RUNOFF XSECTION 8
OUTPUT HYDROGRAPH = 5 AREA = .02 SQ MI
INPUT RUNOFF CURVE = 81. TIME OF CONCENTRATION = .67 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0889 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.18	58.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.55 WATERSHED INCHES; 88 CFS-HRS; 7.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 9
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

```
   12.27                        761.5                         (NULL)
   12.70                        742.4                         (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.67 WATERSHED INCHES;    2872 CFS-HRS;     237.3 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2
        INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 7
        SURFACE ELEVATION =  1350.00

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.46                        747.3                        1354.51

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.54 WATERSHED INCHES;    2803 CFS-HRS;     231.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  10
        OUTPUT HYDROGRAPH =  4      AREA =    .18 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.21 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0964 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.50                        312.7                         (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.55 WATERSHED INCHES;     650 CFS-HRS;      53.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  11
1
 TR20 ------------------------------------------------------------------- SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   4   JOB NO.   1                       PAGE  30

        OUTPUT HYDROGRAPH =  5      AREA =    .05 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.09                        156.0                         (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                6.25 WATERSHED INCHES;     211 CFS-HRS;      17.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  12
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.28                        401.4                         (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.71 WATERSHED INCHES;     861 CFS-HRS;      71.1 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  3
        INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
        SURFACE ELEVATION =  1355.00

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
```

12.38 395.8 1358.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 861 CFS-HRS; 71.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 13
OUTPUT HYDROGRAPH = 5 AREA = .02 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0444 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	52.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.24 WATERSHED INCHES; 64 CFS-HRS; 5.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 14
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	415.0	(NULL)

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 PASS 4 JOB NO. 1 PAGE 31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 925 CFS-HRS; 76.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 4
INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 4
SURFACE ELEVATION = 1351.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.51	396.0	1354.49

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 925 CFS-HRS; 76.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 15
OUTPUT HYDROGRAPH = 5 AREA = .01 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .25 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0333 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.97	46.6	(RUNOFF)
18.95	1.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.24 WATERSHED INCHES; 54 CFS-HRS; 4.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 16
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	403.1	(NULL)

```
   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.77 WATERSHED INCHES;     978 CFS-HRS;      80.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  17
        OUTPUT HYDROGRAPH =  4      AREA =    .03 SQ MI
        INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                         94.5                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                6.37 WATERSHED INCHES;     116 CFS-HRS;       9.5 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------------ SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   4   JOB NO.   1                       PAGE  32



 OPERATION ADDHYD   XSECTION  18
        INPUT HYDROGRAPHS 4,6     OUTPUT HYDROGRAPH 5

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.41                         424.5                      (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.82 WATERSHED INCHES;    1094 CFS-HRS;      90.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  19
        INPUT HYDROGRAPHS 5,7     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.44                        1172.9                      (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.62 WATERSHED INCHES;    3897 CFS-HRS;     322.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20
        OUTPUT HYDROGRAPH =  4      AREA =    .12 SQ MI
        INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .50 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.09                         354.0                      (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                6.37 WATERSHED INCHES;     479 CFS-HRS;      39.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  21
        OUTPUT HYDROGRAPH =  5      AREA =    .14 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.27 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .1014 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.53                         235.7                      (RUNOFF)
```

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.55 WATERSHED INCHES; 504 CFS-HRS; 41.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 22
INPUT HYDROGRAPHS 6,4 OUTPUT HYDROGRAPH 7

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 PASS 4 JOB NO. 1 PAGE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	1442.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.69 WATERSHED INCHES; 4376 CFS-HRS; 361.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 23
INPUT HYDROGRAPHS 7,5 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.26	1629.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.67 WATERSHED INCHES; 4880 CFS-HRS; 403.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 5
INPUT HYDROGRAPH 4 OUTPUT HYDROGRAPH 6
SURFACE ELEVATION = 1345.50

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.75	1424.2	1349.92

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.55 WATERSHED INCHES; 4777 CFS-HRS; 394.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 24
OUTPUT HYDROGRAPH = 5 AREA = .40 SQ MI
INPUT RUNOFF CURVE = 85. TIME OF CONCENTRATION = 1.52 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0958 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.67	646.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.06 WATERSHED INCHES; 1572 CFS-HRS; 129.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 25
OUTPUT HYDROGRAPH = 7 AREA = .03 SQ MI
INPUT RUNOFF CURVE = 81. TIME OF CONCENTRATION = .33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0444 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	96.3	(RUNOFF)

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION

   RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
                5.55 WATERSHED INCHES;   114 CFS-HRS;   9.4 ACRE-FEET.

 OPERATION ADDHYD   XSECTION 26
        INPUT HYDROGRAPHS 6,5   OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)   PEAK DISCHARGE(CFS)   PEAK ELEVATION(FEET)
      12.71   2067.9   (NULL)

   RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
                5.67 WATERSHED INCHES;   6349 CFS-HRS;   524.6 ACRE-FEET.

 OPERATION ADDHYD   XSECTION 27
        INPUT HYDROGRAPHS 4,7   OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)   PEAK DISCHARGE(CFS)   PEAK ELEVATION(FEET)
      12.70   2081.4   (NULL)

   RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
                5.67 WATERSHED INCHES;   6462 CFS-HRS;   534.0 ACRE-FEET.

 EXECUTIVE CONTROL ENDCMP   COMPUTATIONS COMPLETED FOR PASS   4
1
 TR20 --- SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION

 EXECUTIVE CONTROL COMPUT   FROM XSECTION   1 TO XSECTION 27
   STARTING TIME =   .00   RAIN DEPTH = 9.35   RAIN DURATION = 1.00
   ANT. RUNOFF COND. = 2   MAIN TIME INCREMENT =   .100 HOURS
   ALTERNATE NO. =15   STORM NO. = 5   RAIN TABLE NO. = 7

 OPERATION RUNOFF   XSECTION   1
        OUTPUT HYDROGRAPH = 1   AREA =   .49 SQ MI
        INPUT RUNOFF CURVE = 81.   TIME OF CONCENTRATION = 2.33 HOURS
        COMPUTED INTERNAL TIME INCREMENT = .1033 HOURS

   PEAK TIME(HRS)   PEAK DISCHARGE(CFS)   PEAK ELEVATION(FEET)
      13.16   681.8   (RUNOFF)

   RUNOFF ABOVE BASEFLOW (BASEFLOW =   .00 CFS)
                7.02 WATERSHED INCHES;   2223 CFS-HRS;   183.7 ACRE-FEET.

 OPERATION RUNOFF   XSECTION   2
        OUTPUT HYDROGRAPH = 2   AREA =   .14 SQ MI
        INPUT RUNOFF CURVE = 82.   TIME OF CONCENTRATION = 1.08 HOURS
        COMPUTED INTERNAL TIME INCREMENT = .0992 HOURS

   PEAK TIME(HRS)   PEAK DISCHARGE(CFS)   PEAK ELEVATION(FEET)
      12.42   324.3   (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.19 WATERSHED INCHES; 638 CFS-HRS; 52.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 3
OUTPUT HYDROGRAPH = 3 AREA = .07 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0667 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	252.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.76 WATERSHED INCHES; 345 CFS-HRS; 28.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 4
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.84	851.1	(NULL)

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 PASS 5 JOB NO. 1 PAGE 36

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.06 WATERSHED INCHES; 2862 CFS-HRS; 236.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 5
INPUT HYDROGRAPHS 3,4 OUTPUT HYDROGRAPH 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.73	900.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.13 WATERSHED INCHES; 3206 CFS-HRS; 265.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 1
INPUT HYDROGRAPH 5 OUTPUT HYDROGRAPH 6
SURFACE ELEVATION = 1354.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.97	878.2	1359.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.09 WATERSHED INCHES; 3190 CFS-HRS; 263.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 6
OUTPUT HYDROGRAPH = 7 AREA = .06 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .42 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0556 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	248.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.89 WATERSHED INCHES; 320 CFS-HRS; 26.4 ACRE-FEET.

```
 OPERATION ADDHYD   XSECTION   7
         INPUT HYDROGRAPHS 6,7     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.90                         905.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.16 WATERSHED INCHES;    3510 CFS-HRS;     290.1 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
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 OPERATION RUNOFF   XSECTION   8
         OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .67 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0889 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.19                          74.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.03 WATERSHED INCHES;     111 CFS-HRS;       9.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   9
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.24                         932.9                       (NULL)
       12.79                         926.7                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.15 WATERSHED INCHES;    3621 CFS-HRS;     299.2 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 7
         SURFACE ELEVATION =  1350.00

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.89                         925.0                        1354.92

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.02 WATERSHED INCHES;    3552 CFS-HRS;     293.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  10
         OUTPUT HYDROGRAPH =  4      AREA =    .18 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.21 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0964 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.49                         393.0                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.02 WATERSHED INCHES;     822 CFS-HRS;      67.9 ACRE-FEET.
```

```
 OPERATION RUNOFF   XSECTION  11
1
 TR20 ------------------------------------------------------------------- SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   5   JOB NO.   1                     PAGE  38

         OUTPUT HYDROGRAPH =  5      AREA =    .05 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.09                         192.2                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.76 WATERSHED INCHES;     262 CFS-HRS;      21.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  12
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.29                         502.1                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.19 WATERSHED INCHES;    1084 CFS-HRS;      89.6 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  3
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
         SURFACE ELEVATION =  1355.00

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.38                         496.0                        1359.08

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.19 WATERSHED INCHES;    1084 CFS-HRS;      89.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  13
         OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                          64.8                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.76 WATERSHED INCHES;      80 CFS-HRS;       6.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  14
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.32                         519.2                       (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   5   JOB NO.   1                     PAGE  39
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```
   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.23 WATERSHED INCHES;    1164 CFS-HRS;      96.2 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  4
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
         SURFACE ELEVATION =  1351.00

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.52                         494.0                       1355.17

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.22 WATERSHED INCHES;    1164 CFS-HRS;      96.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  15
         OUTPUT HYDROGRAPH =  5      AREA =    .01 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .25 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0333 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.97                          57.2                        (RUNOFF)
      18.95                           1.3                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.77 WATERSHED INCHES;      67 CFS-HRS;       5.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  16
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.51                         502.5                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.25 WATERSHED INCHES;    1231 CFS-HRS;     101.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  17
         OUTPUT HYDROGRAPH =  4      AREA =    .03 SQ MI
         INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                         115.5                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.89 WATERSHED INCHES;     143 CFS-HRS;      11.8 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    PASS   5   JOB NO.   1                      PAGE  40



 OPERATION ADDHYD   XSECTION  18
         INPUT HYDROGRAPHS 4,6     OUTPUT HYDROGRAPH 5

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.41                         528.2                       (NULL)
```

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.31 WATERSHED INCHES; 1374 CFS-HRS; 113.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 19
INPUT HYDROGRAPHS 5,7 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.47	1441.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.10 WATERSHED INCHES; 4926 CFS-HRS; 407.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 20
OUTPUT HYDROGRAPH = 4 AREA = .12 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0667 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	433.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.88 WATERSHED INCHES; 594 CFS-HRS; 49.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 21
OUTPUT HYDROGRAPH = 5 AREA = .14 SQ MI
INPUT RUNOFF CURVE = 81. TIME OF CONCENTRATION = 1.27 HOURS
COMPUTED INTERNAL TIME INCREMENT = .1014 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.53	296.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.03 WATERSHED INCHES; 637 CFS-HRS; 52.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 22
INPUT HYDROGRAPHS 6,4 OUTPUT HYDROGRAPH 7

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
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PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	1770.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.18 WATERSHED INCHES; 5519 CFS-HRS; 456.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 23
INPUT HYDROGRAPHS 7,5 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	2009.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.16 WATERSHED INCHES; 6157 CFS-HRS; 508.8 ACRE-FEET.

```
 OPERATION RESVOR   STRUCTURE  5
         INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 6
         SURFACE ELEVATION =  1345.50

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.71                       1797.2                       1350.33

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.04 WATERSHED INCHES;    6051 CFS-HRS;     500.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  24
         OUTPUT HYDROGRAPH =  5      AREA =    .40 SQ MI
         INPUT RUNOFF CURVE = 85.    TIME OF CONCENTRATION =  1.52 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0958 HOURS

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.67                       800.1                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.57 WATERSHED INCHES;    1963 CFS-HRS;     162.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  25
         OUTPUT HYDROGRAPH =  7      AREA =    .03 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                       120.4                        (RUNOFF)
1
 TR20 ------------------------------------------------------------------- SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
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    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.02 WATERSHED INCHES;     144 CFS-HRS;      11.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  26
         INPUT HYDROGRAPHS 6,5     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.69                       2596.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.16 WATERSHED INCHES;    8014 CFS-HRS;     662.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  27
         INPUT HYDROGRAPHS 4,7     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.68                       2613.7                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.16 WATERSHED INCHES;    8157 CFS-HRS;     674.1 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   5
```

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 3.50 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 7, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 11 STORM 1							
XSECTION 1	RUNOFF	.49	1.71	---	13.22	165	336.7
XSECTION 2	RUNOFF	.14	1.81	---	12.43	84	600.0
XSECTION 3	RUNOFF	.07	2.18	---	12.10	75	1071.4
XSECTION 4	ADDHYD	.63	1.73	---	12.91	207	328.6
XSECTION 5	ADDHYD	.70	1.77	---	12.76	221	315.7
STRUCTURE 1	RESVOR	.70	1.74	1356.46	12.84	220	314.3
XSECTION 6	RUNOFF	.06	2.27	---	12.06	76	1266.7
XSECTION 7	ADDHYD	.76	1.78	---	12.25	243	319.7
XSECTION 8	RUNOFF	.02	1.70	---	12.19	18	900.0
XSECTION 9	ADDHYD	.78	1.78	---	12.25	263	337.2
STRUCTURE 2	RESVOR	.78	1.65	1353.15	12.73	240	307.7
XSECTION 10	RUNOFF	.18	1.71	---	12.52	97	538.9
XSECTION 11	RUNOFF	.05	2.18	---	12.10	57	1140.0
XSECTION 12	ADDHYD	.23	1.81	---	12.29	129	560.9
STRUCTURE 3	RESVOR	.23	1.81	1357.64	12.46	123	534.8
XSECTION 13	RUNOFF	.02	2.18	---	12.01	19	950.0
XSECTION 14	ADDHYD	.25	1.84	---	12.43	128	512.0
STRUCTURE 4	RESVOR	.25	1.84	1352.46	12.67	118	472.0
XSECTION 15	RUNOFF	.01	2.18	---	11.97	17	1700.0
XSECTION 16	ADDHYD	.26	1.85	---	12.66	120	461.5
XSECTION 17	RUNOFF	.03	2.26	---	12.01	35	1166.7
XSECTION 18	ADDHYD	.29	1.89	---	12.63	126	434.5
XSECTION 19	ADDHYD	1.08	1.71	---	12.67	366	338.9
XSECTION 20	RUNOFF	.12	2.27	---	12.10	131	1091.7
XSECTION 21	RUNOFF	.14	1.71	---	12.56	72	514.3
XSECTION 22	ADDHYD	1.19	1.77	---	12.55	407	342.0
XSECTION 23	ADDHYD	1.33	1.76	---	12.55	478	359.4
STRUCTURE 5	RESVOR	1.33	1.66	1348.31	13.43	327	245.9

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 SUMMARY, JOB NO. 1 PAGE 44

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 11 STORM 1							
XSECTION 24	RUNOFF	.40	2.05	---	12.69	223	557.5
XSECTION 25	RUNOFF	.03	1.71	---	12.01	30	1000.0
XSECTION 26	ADDHYD	1.73	1.75	---	13.20	475	274.6
XSECTION 27	ADDHYD	1.77	1.75	---	13.20	477	269.5
RAINFALL OF 4.55 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 12 STORM 2							
XSECTION 1	RUNOFF	.49	2.59	---	13.20	253	516.3
XSECTION 2	RUNOFF	.14	2.71	---	12.43	125	892.9
XSECTION 3	RUNOFF	.07	3.14	---	12.09	107	1528.6
XSECTION 4	ADDHYD	.63	2.62	---	12.89	316	501.6
XSECTION 5	ADDHYD	.70	2.67	---	12.75	337	481.4
STRUCTURE 1	RESVOR	.70	2.64	1356.82	12.83	336	480.0
XSECTION 6	RUNOFF	.06	3.24	---	12.06	107	1783.3
XSECTION 7	ADDHYD	.76	2.69	---	12.25	368	484.2
XSECTION 8	RUNOFF	.02	2.59	---	12.19	28	1400.0
XSECTION 9	ADDHYD	.78	2.68	---	12.24	395	506.4
STRUCTURE 2	RESVOR	.78	2.55	1353.55	12.47	376	482.1
XSECTION 10	RUNOFF	.18	2.59	---	12.51	148	822.2
XSECTION 11	RUNOFF	.05	3.14	---	12.09	81	1620.0
XSECTION 12	ADDHYD	.23	2.71	---	12.29	194	843.5
STRUCTURE 3	RESVOR	.23	2.71	1358.03	12.42	189	821.7
XSECTION 13	RUNOFF	.02	3.14	---	12.01	27	1350.0
XSECTION 14	ADDHYD	.25	2.74	---	12.39	197	788.0
STRUCTURE 4	RESVOR	.25	2.74	1353.04	12.59	186	744.0
XSECTION 15	RUNOFF	.01	3.15	---	11.97	24	2400.0
XSECTION 16	ADDHYD	.26	2.76	---	12.58	189	726.9
XSECTION 17	RUNOFF	.03	3.24	---	12.01	50	1666.7
XSECTION 18	ADDHYD	.29	2.81	---	12.54	199	686.2

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 SUMMARY, JOB NO. 1 PAGE 45

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 12 STORM 2							
XSECTION 19	ADDHYD	1.08	2.62	---	12.51	574	531.5
XSECTION 20	RUNOFF	.12	3.24	---	12.09	186	1550.0
XSECTION 21	RUNOFF	.14	2.59	---	12.55	110	785.7
XSECTION 22	ADDHYD	1.19	2.68	---	12.31	685	575.6
XSECTION 23	ADDHYD	1.33	2.67	---	12.34	783	588.7
STRUCTURE 5	RESVOR	1.33	2.56	1348.81	13.08	598	449.6
XSECTION 24	RUNOFF	.40	2.99	---	12.68	325	812.5
XSECTION 25	RUNOFF	.03	2.59	---	12.01	46	1533.3
XSECTION 26	ADDHYD	1.73	2.66	---	12.92	888	513.3
XSECTION 27	ADDHYD	1.77	2.66	---	12.91	893	504.5

RAINFALL OF 5.25 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 13 STORM 3							
XSECTION 1	RUNOFF	.49	3.21	---	13.19	314	640.8
XSECTION 2	RUNOFF	.14	3.34	---	12.43	154	1100.0
XSECTION 3	RUNOFF	.07	3.80	---	12.09	128	1828.6
XSECTION 4	ADDHYD	.63	3.24	---	12.88	392	622.2
XSECTION 5	ADDHYD	.70	3.29	---	12.74	417	595.7
STRUCTURE 1	RESVOR	.70	3.26	1357.08	12.90	413	590.0
XSECTION 6	RUNOFF	.06	3.90	---	12.06	128	2133.3
XSECTION 7	ADDHYD	.76	3.31	---	12.25	450	592.1
XSECTION 8	RUNOFF	.02	3.20	---	12.19	34	1700.0
XSECTION 9	ADDHYD	.78	3.31	---	12.24	486	623.1
STRUCTURE 2	RESVOR	.78	3.17	1353.82	12.43	467	598.7
XSECTION 10	RUNOFF	.18	3.21	---	12.50	183	1016.7
XSECTION 11	RUNOFF	.05	3.80	---	12.09	97	1940.0
XSECTION 12	ADDHYD	.23	3.34	---	12.29	238	1034.8
STRUCTURE 3	RESVOR	.23	3.34	1358.19	12.39	235	1021.7
XSECTION 13	RUNOFF	.02	3.80	---	12.01	33	1650.0

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 SUMMARY, JOB NO. 1 PAGE 46

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 13 STORM 3

XSECTION	14	ADDHYD	.25	3.37	---	12.34	247	988.0
STRUCTURE	4	RESVOR	.25	3.37	1353.37	12.53	234	936.0
XSECTION	15	RUNOFF	.01	3.79	---	11.97	29	2900.0
XSECTION	16	ADDHYD	.26	3.39	---	12.53	238	915.4
XSECTION	17	RUNOFF	.03	3.90	---	12.01	60	2000.0
XSECTION	18	ADDHYD	.29	3.44	---	12.48	251	865.5
XSECTION	19	ADDHYD	1.08	3.24	---	12.45	718	664.8
XSECTION	20	RUNOFF	.12	3.90	---	12.09	222	1850.0
XSECTION	21	RUNOFF	.14	3.21	---	12.54	137	978.6
XSECTION	22	ADDHYD	1.19	3.31	---	12.26	865	726.9
XSECTION	23	ADDHYD	1.33	3.30	---	12.31	983	739.1
STRUCTURE	5	RESVOR	1.33	3.19	1349.10	12.94	783	588.7
XSECTION	24	RUNOFF	.40	3.64	---	12.67	394	985.0
XSECTION	25	RUNOFF	.03	3.21	---	12.01	57	1900.0
XSECTION	26	ADDHYD	1.73	3.29	---	12.83	1157	668.8
XSECTION	27	ADDHYD	1.77	3.29	---	12.83	1164	657.6

RAINFALL OF 7.80 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 14 STORM 4

XSECTION	1	RUNOFF	.49	5.55	---	13.17	542	1106.1
XSECTION	2	RUNOFF	.14	5.71	---	12.42	260	1857.1
XSECTION	3	RUNOFF	.07	6.25	---	12.09	205	2928.6
XSECTION	4	ADDHYD	.63	5.59	---	12.85	677	1074.6
XSECTION	5	ADDHYD	.70	5.65	---	12.73	717	1024.3
STRUCTURE	1	RESVOR	.70	5.62	1358.37	12.96	701	1001.4
XSECTION	6	RUNOFF	.06	6.37	---	12.05	203	3383.3
XSECTION	7	ADDHYD	.76	5.68	---	12.88	724	952.6
XSECTION	8	RUNOFF	.02	5.55	---	12.18	59	2950.0
XSECTION	9	ADDHYD	.78	5.67	---	12.27	762	976.9

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 SUMMARY, JOB NO. 1 PAGE 47

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)

ALTERNATE 14 STORM 4

STRUCTURE	2	RESVOR	.78	5.54	1354.51	12.46	747	957.7
XSECTION	10	RUNOFF	.18	5.55	---	12.50	313	1738.9

XSECTION	11	RUNOFF	.05	6.25	---	12.09	156	3120.0
XSECTION	12	ADDHYD	.23	5.71	---	12.28	401	1743.5
STRUCTURE	3	RESVOR	.23	5.71	1358.75	12.38	396	1721.7
XSECTION	13	RUNOFF	.02	6.24	---	12.01	53	2650.0
XSECTION	14	ADDHYD	.25	5.74	---	12.32	415	1660.0
STRUCTURE	4	RESVOR	.25	5.74	1354.49	12.51	396	1584.0
XSECTION	15	RUNOFF	.01	6.24	---	11.97	47	4700.0
XSECTION	16	ADDHYD	.26	5.77	---	12.50	403	1550.0
XSECTION	17	RUNOFF	.03	6.37	---	12.01	94	3133.3
XSECTION	18	ADDHYD	.29	5.82	---	12.41	425	1465.5
XSECTION	19	ADDHYD	1.08	5.62	---	12.44	1173	1086.1
XSECTION	20	RUNOFF	.12	6.37	---	12.09	354	2950.0
XSECTION	21	RUNOFF	.14	5.55	---	12.53	236	1685.7
XSECTION	22	ADDHYD	1.19	5.69	---	12.22	1442	1211.8
XSECTION	23	ADDHYD	1.33	5.67	---	12.26	1630	1225.6
STRUCTURE	5	RESVOR	1.33	5.55	1349.92	12.75	1424	1070.7
XSECTION	24	RUNOFF	.40	6.06	---	12.67	647	1617.5
XSECTION	25	RUNOFF	.03	5.55	---	12.01	96	3200.0
XSECTION	26	ADDHYD	1.73	5.67	---	12.71	2068	1195.4
XSECTION	27	ADDHYD	1.77	5.67	---	12.70	2081	1175.7

RAINFALL OF 9.35 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 15 STORM 5

XSECTION	1	RUNOFF	.49	7.02	---	13.16	682	1391.8
XSECTION	2	RUNOFF	.14	7.19	---	12.42	324	2314.3
XSECTION	3	RUNOFF	.07	7.76	---	12.09	253	3614.3
XSECTION	4	ADDHYD	.63	7.06	---	12.84	851	1350.8

1

TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 SUMMARY, JOB NO. 1 PAGE 48

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 15 STORM 5							
XSECTION 5	ADDHYD	.70	7.13	---	12.73	900	1285.7
STRUCTURE 1	RESVOR	.70	7.09	1359.11	12.97	878	1254.3
XSECTION 6	RUNOFF	.06	7.89	---	12.05	248	4133.3
XSECTION 7	ADDHYD	.76	7.16	---	12.90	905	1190.8
XSECTION 8	RUNOFF	.02	7.03	---	12.19	74	3700.0
XSECTION 9	ADDHYD	.78	7.15	---	12.24	933	1196.2
STRUCTURE 2	RESVOR	.78	7.02	1354.92	12.89	925	1185.9

XSECTION	10	RUNOFF	.18	7.02	---	12.49	393	2183.3
XSECTION	11	RUNOFF	.05	7.76	---	12.09	192	3840.0
XSECTION	12	ADDHYD	.23	7.19	---	12.29	502	2182.6
STRUCTURE	3	RESVOR	.23	7.19	1359.08	12.38	496	2156.5
XSECTION	13	RUNOFF	.02	7.76	---	12.01	65	3250.0
XSECTION	14	ADDHYD	.25	7.23	---	12.32	519	2076.0
STRUCTURE	4	RESVOR	.25	7.22	1355.17	12.52	494	1976.0
XSECTION	15	RUNOFF	.01	7.77	---	11.97	57	5700.0
XSECTION	16	ADDHYD	.26	7.25	---	12.51	503	1934.6
XSECTION	17	RUNOFF	.03	7.89	---	12.01	116	3866.7
XSECTION	18	ADDHYD	.29	7.31	---	12.41	528	1820.7
XSECTION	19	ADDHYD	1.08	7.10	---	12.47	1441	1334.3
XSECTION	20	RUNOFF	.12	7.88	---	12.09	433	3608.3
XSECTION	21	RUNOFF	.14	7.03	---	12.53	297	2121.4
XSECTION	22	ADDHYD	1.19	7.18	---	12.22	1771	1488.2
XSECTION	23	ADDHYD	1.33	7.16	---	12.27	2009	1510.5
STRUCTURE	5	RESVOR	1.33	7.04	1350.33	12.71	1797	1351.1
XSECTION	24	RUNOFF	.40	7.57	---	12.67	800	2000.0
XSECTION	25	RUNOFF	.03	7.02	---	12.01	120	4000.0
XSECTION	26	ADDHYD	1.73	7.16	---	12.69	2596	1500.6
XSECTION	27	ADDHYD	1.77	7.16	---	12.68	2614	1476.8

1
TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 SUMMARY, JOB NO. 1 PAGE 49

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
STRUCTURE 5	1.33					
ALTERNATE 11		327	********	********	********	********
ALTERNATE 12		********	598	********	********	********
ALTERNATE 13		********	********	783	********	********
ALTERNATE 14		********	********	********	1424	********
ALTERNATE 15		********	********	********	********	1797
STRUCTURE 4	.25					
ALTERNATE 11		118	********	********	********	********
ALTERNATE 12		********	186	********	********	********
ALTERNATE 13		********	********	234	********	********
ALTERNATE 14		********	********	********	396	********
ALTERNATE 15		********	********	********	********	494
STRUCTURE 3	.23					
ALTERNATE 11		123	********	********	********	********
ALTERNATE 12		********	189	********	********	********
ALTERNATE 13		********	********	235	********	********

ALTERNATE	14	*********	*********	*********	396	*********
ALTERNATE	15	*********	*********	*********	*********	496

STRUCTURE 2 .78

ALTERNATE	11	240	*********	*********	*********	*********
ALTERNATE	12	*********	376	*********	*********	*********
ALTERNATE	13	*********	*********	467	*********	*********
ALTERNATE	14	*********	*********	*********	747	*********
ALTERNATE	15	*********	*********	*********	*********	925

STRUCTURE 1 .70

ALTERNATE	11	220	*********	*********	*********	*********
ALTERNATE	12	*********	336	*********	*********	*********
ALTERNATE	13	*********	*********	413	*********	*********
ALTERNATE	14	*********	*********	*********	701	*********
ALTERNATE	15	*********	*********	*********	*********	878

XSECTION 1 .49

ALTERNATE	11	165	*********	*********	*********	*********
ALTERNATE	12	*********	253	*********	*********	*********
ALTERNATE	13	*********	*********	314	*********	*********
ALTERNATE	14	*********	*********	*********	542	*********

1

TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 SUMMARY, JOB NO. 1 PAGE 50

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION	1	.49					
ALTERNATE	15		*********	*********	*********	*********	682
XSECTION	2	.14					
ALTERNATE	11		84	*********	*********	*********	*********
ALTERNATE	12		*********	125	*********	*********	*********
ALTERNATE	13		*********	*********	154	*********	*********
ALTERNATE	14		*********	*********	*********	260	*********
ALTERNATE	15		*********	*********	*********	*********	324
XSECTION	3	.07					
ALTERNATE	11		75	*********	*********	*********	*********
ALTERNATE	12		*********	107	*********	*********	*********
ALTERNATE	13		*********	*********	128	*********	*********
ALTERNATE	14		*********	*********	*********	205	*********
ALTERNATE	15		*********	*********	*********	*********	253
XSECTION	4	.63					

```
 ---------------------------
    ALTERNATE   11              207 ********* ********* ********* *********
    ALTERNATE   12           ********       316 ********* ********* *********
    ALTERNATE   13           ********* *********       392 ********* *********
    ALTERNATE   14           ********* ********* *********       677 *********
    ALTERNATE   15           ********* ********* ********* *********       851

 XSECTION    5          .70
 ---------------------------
    ALTERNATE   11              221 ********* ********* ********* *********
    ALTERNATE   12           ********       337 ********* ********* *********
    ALTERNATE   13           ********* *********       417 ********* *********
    ALTERNATE   14           ********* ********* *********       717 *********
    ALTERNATE   15           ********* ********* ********* *********       900

 XSECTION    6          .06
 ---------------------------
    ALTERNATE   11               76 ********* ********* ********* *********
    ALTERNATE   12           ********       107 ********* ********* *********
    ALTERNATE   13           ********* *********       128 ********* *********
    ALTERNATE   14           ********* ********* *********       203 *********
    ALTERNATE   15           ********* ********* ********* *********       248

 XSECTION    7          .76
 ---------------------------
    ALTERNATE   11              243 ********* ********* ********* *********
    ALTERNATE   12           ********       368 ********* ********* *********
1
 TR20 ------------------------------------------------------------------------ SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
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                           SUMMARY TABLE 3
                           ---------------
       STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
       QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

 XSECTION/          DRAINAGE
 STRUCTURE            AREA       STORM NUMBERS.....
   ID                (SQ MI)          1         2         3         4         5


 XSECTION    7          .76
 ---------------------------
    ALTERNATE   13           ********* *********       450 ********* *********
    ALTERNATE   14           ********* ********* *********       724 *********
    ALTERNATE   15           ********* ********* ********* *********       905

 XSECTION    8          .02
 ---------------------------
    ALTERNATE   11               18 ********* ********* ********* *********
    ALTERNATE   12           ********        28 ********* ********* *********
    ALTERNATE   13           ********* *********        34 ********* *********
    ALTERNATE   14           ********* ********* *********        59 *********
    ALTERNATE   15           ********* ********* ********* *********        74

 XSECTION    9          .78
 ---------------------------
    ALTERNATE   11              263 ********* ********* ********* *********
    ALTERNATE   12           ********       395 ********* ********* *********
    ALTERNATE   13           ********* *********       486 ********* *********
```

ALTERNATE	14	*********	*********	*********	762	*********
ALTERNATE	15	*********	*********	*********	*********	933

XSECTION 10 .18

ALTERNATE	11	97	*********	*********	*********	*********
ALTERNATE	12	*********	148	*********	*********	*********
ALTERNATE	13	*********	*********	183	*********	*********
ALTERNATE	14	*********	*********	*********	313	*********
ALTERNATE	15	*********	*********	*********	*********	393

XSECTION 11 .05

ALTERNATE	11	57	*********	*********	*********	*********
ALTERNATE	12	*********	81	*********	*********	*********
ALTERNATE	13	*********	*********	97	*********	*********
ALTERNATE	14	*********	*********	*********	156	*********
ALTERNATE	15	*********	*********	*********	*********	192

XSECTION 12 .23

ALTERNATE	11	129	*********	*********	*********	*********
ALTERNATE	12	*********	194	*********	*********	*********
ALTERNATE	13	*********	*********	238	*********	*********
ALTERNATE	14	*********	*********	*********	401	*********
ALTERNATE	15	*********	*********	*********	*********	502

XSECTION 13 .02

1

TR20 ---------- SCS -
krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS VERSION
01/11/** krugex.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
15:22:20 SUMMARY, JOB NO. 1 PAGE 52

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION	13	.02					
ALTERNATE	11		19	*********	*********	*********	*********
ALTERNATE	12		*********	27	*********	*********	*********
ALTERNATE	13		*********	*********	33	*********	*********
ALTERNATE	14		*********	*********	*********	53	*********
ALTERNATE	15		*********	*********	*********	*********	65
XSECTION	14	.25					
ALTERNATE	11		128	*********	*********	*********	*********
ALTERNATE	12		*********	197	*********	*********	*********
ALTERNATE	13		*********	*********	247	*********	*********
ALTERNATE	14		*********	*********	*********	415	*********
ALTERNATE	15		*********	*********	*********	*********	519
XSECTION	15	.01					

```
 ---------------------------
    ALTERNATE   11              17 ********* ********* ********* *********
    ALTERNATE   12           ********       24 ********* ********* *********
    ALTERNATE   13           ********* *********       29 ********* *********
    ALTERNATE   14           ********* ********* *********       47 *********
    ALTERNATE   15           ********* ********* ********* *********       57

 XSECTION   16          .26
 ---------------------------
    ALTERNATE   11             120 ********* ********* ********* *********
    ALTERNATE   12           ********      189 ********* ********* *********
    ALTERNATE   13           ********* *********      238 ********* *********
    ALTERNATE   14           ********* ********* *********      403 *********
    ALTERNATE   15           ********* ********* ********* *********       503

 XSECTION   17          .03
 ---------------------------
    ALTERNATE   11              35 ********* ********* ********* *********
    ALTERNATE   12           ********       50 ********* ********* *********
    ALTERNATE   13           ********* *********       60 ********* *********
    ALTERNATE   14           ********* ********* *********       94 *********
    ALTERNATE   15           ********* ********* ********* *********       116

 XSECTION   18          .29
 ---------------------------
    ALTERNATE   11             126 ********* ********* ********* *********
    ALTERNATE   12           ********      199 ********* ********* *********
    ALTERNATE   13           ********* *********      251 ********* *********
    ALTERNATE   14           ********* ********* *********      425 *********
    ALTERNATE   15           ********* ********* ********* *********       528
1
 TR20 ------------------------------------------------------------------------ SCS -
         krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    SUMMARY, JOB NO.   1                      PAGE  53


                            SUMMARY TABLE 3
                            ---------------
      STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
      QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

 XSECTION/          DRAINAGE
 STRUCTURE            AREA       STORM NUMBERS.....
   ID                (SQ MI)          1         2         3         4         5


 XSECTION   19         1.08
 ---------------------------
    ALTERNATE   11             366 ********* ********* ********* *********
    ALTERNATE   12           ********      574 ********* ********* *********
    ALTERNATE   13           ********* *********      718 ********* *********
    ALTERNATE   14           ********* ********* *********     1173 *********
    ALTERNATE   15           ********* ********* ********* *********      1441

 XSECTION   20          .12
 ---------------------------
    ALTERNATE   11             131 ********* ********* ********* *********
    ALTERNATE   12           ********      186 ********* ********* *********
    ALTERNATE   13           ********* *********      222 ********* *********
    ALTERNATE   14           ********* ********* *********      354 *********
    ALTERNATE   15           ********* ********* ********* *********       433
```

```
 XSECTION   21          .14
 ---------------------------
    ALTERNATE   11              72 ********* ********* ********* *********
    ALTERNATE   12         ********       110 ********* ********* *********
    ALTERNATE   13         ********* ********       137 ********* *********
    ALTERNATE   14         ********* ********* *********       236 *********
    ALTERNATE   15         ********* ********* ********* *********       297

 XSECTION   22         1.19
 ---------------------------
    ALTERNATE   11             407 ********* ********* ********* *********
    ALTERNATE   12         ********       685 ********* ********* *********
    ALTERNATE   13         ********* ********       865 ********* *********
    ALTERNATE   14         ********* ********* *********      1442 *********
    ALTERNATE   15         ********* ********* ********* *********      1771

 XSECTION   23         1.33
 ---------------------------
    ALTERNATE   11             478 ********* ********* ********* *********
    ALTERNATE   12         ********       783 ********* ********* *********
    ALTERNATE   13         ********* ********       983 ********* *********
    ALTERNATE   14         ********* ********* *********      1630 *********
    ALTERNATE   15         ********* ********* ********* *********      2009

 XSECTION   24          .40
 ---------------------------
    ALTERNATE   11             223 ********* ********* ********* *********
    ALTERNATE   12         ********       325 ********* ********* *********
    ALTERNATE   13         ********* ********       394 ********* *********
1
 TR20 ------------------------------------------------------------------------ SCS -
        krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST
 15:22:20                    SUMMARY, JOB NO.   1                      PAGE  54


                            SUMMARY TABLE 3
                            ---------------
      STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
      QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

 XSECTION/          DRAINAGE
 STRUCTURE            AREA       STORM NUMBERS.....
   ID                (SQ MI)          1         2         3         4         5


 XSECTION   24          .40
 ---------------------------
    ALTERNATE   14         ********* ********* *********       647 *********
    ALTERNATE   15         ********* ********* ********* *********       800

 XSECTION   25          .03
 ---------------------------
    ALTERNATE   11              30 ********* ********* ********* *********
    ALTERNATE   12         ********        46 ********* ********* *********
    ALTERNATE   13         ********* ********         57 ********* *********
    ALTERNATE   14         ********* ********* *********         96 *********
    ALTERNATE   15         ********* ********* ********* *********       120

 XSECTION   26         1.73
 ---------------------------
    ALTERNATE   11             475 ********* ********* ********* *********
    ALTERNATE   12         ********       888 ********* ********* *********
```

```
   ALTERNATE   13            ********* *********      1157 ********* *********
   ALTERNATE   14            ********* ********* ********* ********* *********
   ALTERNATE   15            ********* ********* ********* ********* ********* 2596

 XSECTION   27         1.77
 ---------------------------
   ALTERNATE   11                  477 ********* ********* ********* *********
   ALTERNATE   12            *********       893 ********* ********* *********
   ALTERNATE   13            ********* *********      1164 ********* *********
   ALTERNATE   14            ********* ********* *********      2081 *********
   ALTERNATE   15            ********* ********* ********* *********      2614
1
 TR20 ---------------------------------------------------------------------- SCS -
          krug S undeveloped/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  VERSION
 01/11/** krugex.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM Z2.04TEST



 END OF  1 JOBS IN THIS RUN
```

```
                    SCS  TR-20,  VERSION 2.04TEST
                                  FILES

     INPUT  = krugex.t20                              , GIVEN DATA FILE
     OUTPUT = krugex.OUT                              , DATED 01/11/**,15:22:20

              FILES GENERATED - DATED 01/11/**,15:22:20

    FILE krugex.TMG CONTAINS MESSAGE + WARNING INFORMATION


           TOTAL NUMBER OF WARNINGS =   1,  MESSAGES =  15

                     *** TR-20 RUN COMPLETED ***
```

TR-20 Post-Project

```
1


 *****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

 JOB TR-20                     FULLPRINT           SUMMARY   NOPLOTS
 TITLE 001 KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN 2007
 TITLE     krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZONE 5
 4 DIMHYD               0.020                                          484
  8          .000        .030        .100        .190        .310
  8          .470        .660        .820        .930        .990
  8         1.000        .990        .930        .860        .780
  8          .680        .560        .460        .390        .330
  8          .280        .241        .207        .174        .147
  8          .126        .107        .091        .077        .066
  8          .055        .047        .040        .034        .029
  8          .025        .021        .018        .015        .013
  8          .011        .009        .008        .007        .006
  8          .005        .004        .003        .002        .001
  8          .000        .000        .000        .000        .000
  9 ENDTBL
  5 RAINFL 7             0.5
  8          .000        .002        .005        .009        .013
  8          .018        .023        .029        .035        .042
  8          .050        .059        .068        .078        .089
  8          .101        .114        .128        .144        .162
  8          .183        .208        .244        .339        .723
  8          .773        .802        .825        .844        .861
  8          .876        .890        .903        .914        .924
  8          .934        .943        .951        .959        .966
  8          .972        .977        .982        .986        .990
  8          .993        .996        .998       1.000       1.000
  9 ENDTBL
  3 STRUCT      01
  8                      1354.0      0.0         0.0
  8                      1355.0      0.1         1.446
  8                      1356.0      68.         3.249
  8                      1357.0      396.        5.367
  8                      1358.0      614.        8.605
  8                      1359.0      850.        13.269
  8                      1360.0      1105.       18.403
  9 ENDTBL
  3 STRUCT      02
  8                      1350.0      0.0         0.0
  8                      1351.0      0.1         2.782
  8                      1352.0      0.2         5.798
  8                      1353.0      190.        9.054
  8                      1354.0      527.        12.578
  8                      1355.0      958.        16.756
  9 ENDTBL
  3 STRUCT      03
  8                      1355.0      0.0         0.0
  8                      1356.0      6.7         1.273
  8                      1357.0      19.         2.683
  8                      1358.0      181.        4.271
1


 *********************80-80 LIST OF INPUT DATA (CONTINUED)**********************

  8                      1359.0      468.        6.149
```

```
  8                        1360.0      836.        8.327
  9 ENDTBL
  3 STRUCT      04
  8                        1351.0      0.0         0.0
  8                        1352.0      65.         1.447
  8                        1353.0      180.        3.069
  8                        1354.0      325.        4.866
  8                        1355.0      470.        6.842
  8                        1356.0      615.        9.023
  9 ENDTBL
  3 STRUCT      05
  8                        1345.0      0.0         0.0
  8                        1346.0      2.4         11.365
  8                        1347.0      12.2        23.877
  8                        1348.0      154.        37.745
  8                        1349.0      705.        54.585
  8                        1350.0      1485.       75.165
  8                        1351.0      2441.       97.658
  9 ENDTBL
  3 STRUCT      06
  8                        1337.0      0.0         0.0
  8                        1338.0      6.132       0.077
  8                        1339.0      12.276      1.084
  8                        1340.0      18.420      3.517
  8                        1341.0      486.525     7.566
  8                        1342.0      842.139     13.078
  8                        1343.0      1084.65     19.383
  8                        1344.0      1572.60     26.698
  8                        1345.0      2248.57     35.348
  9 ENDTBL
  3 STRUCT      07
  8                        1352.0      0.0         0.0
  8                        1353.0      11.691      0.806
  8                        1354.0      17.636      1.778
  8                        1355.0      23.780      3.205
  8                        1356.0      29.686      5.286
  8                        1357.0      406.649     8.008
  9 ENDTBL
  3 STRUCT      08
  8                        1352.0      0.0         0.0
  8                        1353.0      333.0       2.446
  8                        1353.5      611.76      3.963
  9 ENDTBL
  6 RUNOFF 1 001        1 0.4906      81.0        2.3250                1
  6 RUNOFF 1 002        2 0.1375      82.4        1.075                 1
  6 RUNOFF 1 003        3 0.0688      87.0        0.50                  1
  6 ADDHYD 4 004    1 2 4                                               1
  6 ADDHYD 4 005    3 4 5                                               1
  6 RESVOR 2    01  5   6 1354.0                                        1
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
  6 RUNOFF 1 006        7 0.0628      88.0        0.4167                1
  6 ADDHYD 4 007    6 7 4                                               1
  6 RUNOFF 1 008        5 0.0245      81.0        0.6667                1
  6 ADDHYD 4 009    4 5 6                                               1
  6 RESVOR 2    02  6   7 1350.0                                        1
  6 RUNOFF 1 010        4 0.1814      81.0        1.205                 1
  6 RUNOFF 1 011        5 0.0523      87.0        0.50                  1
  6 ADDHYD 4 012    4 5 6                                               1
```

```
  6 RESVOR 2    03 6   4 1355.0                                        1
  6 RUNOFF 1 013       5 0.0159      87.0        0.333                 1
  6 ADDHYD 4 014   4 5 6                                              1
  6 RESVOR 2    04 6   4 1351.0                                       1
  6 RUNOFF 1 015       5 0.0133      87.0        0.250                 1
  6 ADDHYD 4 016   4 5 6                                              1
  6 RUNOFF 1 017       4 0.0281      88.0        0.333                 1
  6 ADDHYD 4 018   4 6 5                                              1
  6 ADDHYD 4 019   5 7 6                                              1
  6 RUNOFF 1 020       4 0.1167      88.0        0.500                 1
  6 RUNOFF 1 021       5 0.1406      81.0        1.267                 1
  6 ADDHYD 4 022   6 4 7                                              1
  6 ADDHYD 4 023   7 5 4                                              1
  6 RESVOR 2    05 4   6 1345.5                                       1
  6 RUNOFF 1 024       5 0.3126      87.0        1.0017                1
  6 RUNOFF 1 025       7 0.0317      81.0        0.333                 1
  6 ADDHYD 4 026   6 5 4                                              1
  6 ADDHYD 4 027   4 7 6                                              1
  6 RUNOFF 1 028       4 0.089       87.0        0.3117                1
  6 RESVOR 2    07 4   5 1352.0                                       1
  6 RESVOR 2    08 5   7 1352.0                                       1
  6 ADDHYD 4 029   7 6 3                                              1
  6 RESVOR 2    06 3   5 1337.0                                       1
  6 RUNOFF 1 030       4 0.0001      88.0        0.001                 1
  6 ADDHYD 4 031   5 4 6                                              1
    ENDATA
  7 INCREM 6             0.10
  7 COMPUT 7 001   031   0.0         3.50        1.0         7 2  11  01
    ENDCMP 1
  7 COMPUT 7 001   031   0.0         4.55        1.0         7 2  12  02
    ENDCMP 1
  7 COMPUT 7 001   031   0.0         5.25        1.0         7 2  13  03
    ENDCMP 1
  7 COMPUT 7 001   031   0.0         7.80        1.0         7 2  14  04
    ENDCMP 1
  7 COMPUT 7 001   031   0.0         9.35        1.0         7 2  15  05
    ENDCMP 1
    ENDJOB 2


 ********************************END OF 80-80 LIST*******************************
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   1   JOB NO.   1                      PAGE   1


        COMPUTER PROGRAM FOR PROJECT FORMULATION - HYDROLOGY  USER NOTES

 The Users' Manual for this program is SCS Technical Release 20 (TR-20), dated
 April 1990.  The TR-20 program is no longer supported on the mainframe since all
 post 1986 program changes have only been in the IBM compatable microcomputer
 environnment.

 Compatable input and data check programs are TR20INPT.EXE, version III, dated
 01/30/90 and TR20CK.EXE, version II, which is forthcoming.

 Major changes from the 1986 TR-20  microcomputer version are:

 HYDROGRAPH GENERATION: program procedure to develop runoff hydrographs
 revised to preserve total hydrograph volume as well as the peak discharge.
 Hydrographs can contain up to four hundred main time increment points from
```

the beginning of runoff.

ATTKIN ROUTING: seperate channel and floodplain lengths can be entered to define additional storage in meandering channels below the representative low ground elevation. Program changes have been made to better handle multiple peaked hydrographs.

FLOW DURATION: can be obtained if requested.

OUTPUT 80 COLUMNS: Output fits 80 column paper. Hydrograph coordinates over 100 cfs are rounded and shown as whole numbers.

ERRORS, WARNINGS, AND MESSAGES: expanded and updated.

LIST OPTIONS: can print all or selected parts of input data.

INTERMEDIATE PEAKS: requires new IPEAKS record.

1
TR20 --- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
16:23:58 PASS 1 JOB NO. 1 PAGE 2

DIMENSIONLESS HYDROGRAPH TABLE ENTERED

8	.0000	.0300	.1000	.1900	.3100
8	.4700	.6600	.8200	.9300	.9900
8	1.0000	.9900	.9300	.8600	.7800
8	.6800	.5600	.4600	.3900	.3300
8	.2800	.2410	.2070	.1740	.1470
8	.1260	.1070	.0910	.0770	.0660
8	.0550	.0470	.0400	.0340	.0290
8	.0250	.0210	.0180	.0150	.0130
8	.0110	.0090	.0080	.0070	.0060
8	.0050	.0040	.0030	.0020	.0010
8	.0000	.0000	.0000	.0000	.0000

9 ENDTBL

COMPUTED TIME INCREMENT = .0200

COMPUTED PEAK RATE FACTOR = 484.000

1
TR20 --- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
16:23:58 PASS 1 JOB NO. 1 PAGE 3

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .100 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 31
STARTING TIME = .00 RAIN DEPTH = 3.50 RAIN DURATION = 1.00

ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =11 STORM NO. = 1 RAIN TABLE NO. = 7

OPERATION RUNOFF XSECTION 1
OUTPUT HYDROGRAPH = 1 AREA = .49 SQ MI
INPUT RUNOFF CURVE = 81. TIME OF CONCENTRATION = 2.33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .1033 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.22	165.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.71 WATERSHED INCHES; 541 CFS-HRS; 44.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 2
OUTPUT HYDROGRAPH = 2 AREA = .14 SQ MI
INPUT RUNOFF CURVE = 82. TIME OF CONCENTRATION = 1.08 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0992 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	83.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.81 WATERSHED INCHES; 161 CFS-HRS; 13.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 3
OUTPUT HYDROGRAPH = 3 AREA = .07 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0667 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	75.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.18 WATERSHED INCHES; 97 CFS-HRS; 8.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 4
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
16:23:58 PASS 1 JOB NO. 1 PAGE 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.91	206.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.73 WATERSHED INCHES; 701 CFS-HRS; 58.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 5
INPUT HYDROGRAPHS 3,4 OUTPUT HYDROGRAPH 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.76	220.8	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

1.77 WATERSHED INCHES; 798 CFS-HRS; 66.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 1
INPUT HYDROGRAPH 5 OUTPUT HYDROGRAPH 6
SURFACE ELEVATION = 1354.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.84	220.2	1356.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.74 WATERSHED INCHES; 783 CFS-HRS; 64.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 6
OUTPUT HYDROGRAPH = 7 AREA = .06 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .42 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0556 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	75.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.27 WATERSHED INCHES; 92 CFS-HRS; 7.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 7
INPUT HYDROGRAPHS 6,7 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	242.9	(NULL)

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
16:23:58 PASS 1 JOB NO. 1 PAGE 5

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.78 WATERSHED INCHES; 874 CFS-HRS; 72.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 8
OUTPUT HYDROGRAPH = 5 AREA = .02 SQ MI
INPUT RUNOFF CURVE = 81. TIME OF CONCENTRATION = .67 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0889 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	18.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.70 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 9
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	262.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.78 WATERSHED INCHES; 901 CFS-HRS; 74.5 ACRE-FEET.

```
 OPERATION RESVOR   STRUCTURE  2
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 7
         SURFACE ELEVATION =  1350.00

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.73                         240.3                       1353.15

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.65 WATERSHED INCHES;     833 CFS-HRS;      68.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  10
         OUTPUT HYDROGRAPH =  4      AREA =    .18 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.21 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0964 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.52                          96.6                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.71 WATERSHED INCHES;     200 CFS-HRS;      16.5 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   1   JOB NO.   1                      PAGE   6


 OPERATION RUNOFF   XSECTION  11
         OUTPUT HYDROGRAPH =  5      AREA =    .05 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.10                          57.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.18 WATERSHED INCHES;      74 CFS-HRS;       6.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  12
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.29                         128.8                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.81 WATERSHED INCHES;     273 CFS-HRS;      22.6 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  3
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
         SURFACE ELEVATION =  1355.00

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.46                         122.8                       1357.64

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.81 WATERSHED INCHES;     274 CFS-HRS;      22.6 ACRE-FEET.
```

```
 OPERATION RUNOFF   XSECTION  13
        OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                        19.4                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.18 WATERSHED INCHES;      22 CFS-HRS;       1.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  14
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6
1
 TR20 ------------------------------------------------------------------- SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                   PASS   1   JOB NO.   1                      PAGE   7


   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.43                        128.1                      (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                1.84 WATERSHED INCHES;     296 CFS-HRS;      24.5 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  4
        INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
        SURFACE ELEVATION =  1351.00

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.67                        118.3                       1352.46

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                1.84 WATERSHED INCHES;     296 CFS-HRS;      24.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  15
        OUTPUT HYDROGRAPH =  5      AREA =    .01 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .25 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0333 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.97                        17.1                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.18 WATERSHED INCHES;      19 CFS-HRS;       1.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  16
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.66                        120.4                      (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                1.85 WATERSHED INCHES;     314 CFS-HRS;      26.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  17
        OUTPUT HYDROGRAPH =  4      AREA =    .03 SQ MI
```

INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0444 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	35.4	(RUNOFF)

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
16:23:58 PASS 1 JOB NO. 1 PAGE 8

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.26 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 18
INPUT HYDROGRAPHS 4,6 OUTPUT HYDROGRAPH 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.63	126.4	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.89 WATERSHED INCHES; 356 CFS-HRS; 29.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 19
INPUT HYDROGRAPHS 5,7 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.67	365.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.71 WATERSHED INCHES; 1189 CFS-HRS; 98.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 20
OUTPUT HYDROGRAPH = 4 AREA = .12 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0667 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	131.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.27 WATERSHED INCHES; 171 CFS-HRS; 14.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 21
OUTPUT HYDROGRAPH = 5 AREA = .14 SQ MI
INPUT RUNOFF CURVE = 81. TIME OF CONCENTRATION = 1.27 HOURS
COMPUTED INTERNAL TIME INCREMENT = .1014 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.56	72.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
1.71 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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```
 OPERATION ADDHYD   XSECTION  22
         INPUT HYDROGRAPHS 6,4     OUTPUT HYDROGRAPH 7

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.55                         407.2                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.77 WATERSHED INCHES;    1360 CFS-HRS;     112.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23
         INPUT HYDROGRAPHS 7,5     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.55                         478.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.76 WATERSHED INCHES;    1515 CFS-HRS;     125.2 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  5
         INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 6
         SURFACE ELEVATION =  1345.50

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.43                         327.4                        1348.31

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.66 WATERSHED INCHES;    1425 CFS-HRS;     117.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  24
         OUTPUT HYDROGRAPH =  5      AREA =    .31 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =  1.00 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0925 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.39                         240.4                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   2.18 WATERSHED INCHES;     440 CFS-HRS;      36.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  25
         OUTPUT HYDROGRAPH =  7      AREA =    .03 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   1   JOB NO.   1                      PAGE  10


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                          30.5                       (RUNOFF)
       17.40                           1.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   1.71 WATERSHED INCHES;      35 CFS-HRS;       2.9 ACRE-FEET.
```

```
 OPERATION ADDHYD   XSECTION  26
         INPUT HYDROGRAPHS 6,5     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.27                         396.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.76 WATERSHED INCHES;    1865 CFS-HRS;     154.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  27
         INPUT HYDROGRAPHS 4,7     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.26                         399.1                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.76 WATERSHED INCHES;    1900 CFS-HRS;     157.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  28
         OUTPUT HYDROGRAPH =  4      AREA =    .09 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .31 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0416 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.00                         109.7                       (RUNOFF)
       17.35                           3.6                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.18 WATERSHED INCHES;     125 CFS-HRS;      10.4 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  7
         INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 5
         SURFACE ELEVATION =  1352.00

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.44                          27.2                        1355.58
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   1   JOB NO.   1                      PAGE  11


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.18 WATERSHED INCHES;     125 CFS-HRS;      10.3 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  8
         INPUT HYDROGRAPH 5        OUTPUT HYDROGRAPH 7
         SURFACE ELEVATION =  1352.00

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.56                          27.1                        1352.08

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.18 WATERSHED INCHES;     125 CFS-HRS;      10.3 ACRE-FEET.
```

```
 OPERATION ADDHYD   XSECTION  29
         INPUT HYDROGRAPHS 7,6     OUTPUT HYDROGRAPH 3

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.26                         424.2                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.78 WATERSHED INCHES;    2026 CFS-HRS;     167.4 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  6
         INPUT HYDROGRAPH 3        OUTPUT HYDROGRAPH 5
         SURFACE ELEVATION =  1337.00

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.38                         420.3                        1340.86

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.78 WATERSHED INCHES;    2026 CFS-HRS;     167.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  30
         OUTPUT HYDROGRAPH =  4      AREA =    .00 SQ MI
         INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .00 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0012 HOURS

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.78 WATERSHED INCHES;      16 CFS-HRS;     167.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  31
         INPUT HYDROGRAPHS 5,4     OUTPUT HYDROGRAPH 6
1
 TR20 ------------------------------------------------------------------------ SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   1   JOB NO.   1                      PAGE  12


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.38                         420.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  1.78 WATERSHED INCHES;    2026 CFS-HRS;     167.4 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   1
1
 TR20 ------------------------------------------------------------------------ SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   2   JOB NO.   1                      PAGE  13



 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  31
    STARTING TIME =   .00       RAIN DEPTH =  4.55       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. =12           STORM NO. = 2            RAIN TABLE NO. = 7


 OPERATION RUNOFF   XSECTION   1
         OUTPUT HYDROGRAPH =  1      AREA =    .49 SQ MI
```

```
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  2.33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .1033 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      13.20                        253.1                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.59 WATERSHED INCHES;     820 CFS-HRS;      67.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   2
        OUTPUT HYDROGRAPH =  2      AREA =    .14 SQ MI
        INPUT RUNOFF CURVE = 82.    TIME OF CONCENTRATION =  1.08 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0992 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.43                        125.3                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.71 WATERSHED INCHES;     241 CFS-HRS;      19.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   3
        OUTPUT HYDROGRAPH =  3      AREA =    .07 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.09                        107.1                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.14 WATERSHED INCHES;     140 CFS-HRS;      11.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   4
        INPUT HYDROGRAPHS 1,2     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.89                        316.3                       (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   2   JOB NO.   1                     PAGE  14


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.62 WATERSHED INCHES;    1061 CFS-HRS;      87.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   5
        INPUT HYDROGRAPHS 3,4     OUTPUT HYDROGRAPH 5

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.75                        336.7                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.67 WATERSHED INCHES;    1201 CFS-HRS;      99.2 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  1
        INPUT HYDROGRAPH 5        OUTPUT HYDROGRAPH 6
        SURFACE ELEVATION =  1354.00
```

```
   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.83                        335.8                       1356.82

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.64 WATERSHED INCHES;    1185 CFS-HRS;      97.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   6
        OUTPUT HYDROGRAPH =  7      AREA =    .06 SQ MI
        INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .42 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0556 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.06                        106.9                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.24 WATERSHED INCHES;     131 CFS-HRS;      10.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   7
        INPUT HYDROGRAPHS 6,7     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.25                        367.8                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.69 WATERSHED INCHES;    1317 CFS-HRS;     108.8 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   2   JOB NO.   1                      PAGE  15


 OPERATION RUNOFF   XSECTION   8
        OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .67 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0889 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.19                         28.0                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.59 WATERSHED INCHES;      41 CFS-HRS;       3.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   9
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.24                        395.3                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.68 WATERSHED INCHES;    1358 CFS-HRS;     112.2 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2
        INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 7
        SURFACE ELEVATION =  1350.00

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
```

12.47 376.0 1353.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.55 WATERSHED INCHES; 1289 CFS-HRS; 106.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 10
OUTPUT HYDROGRAPH = 4 AREA = .18 SQ MI
INPUT RUNOFF CURVE = 81. TIME OF CONCENTRATION = 1.21 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0964 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.51 147.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.59 WATERSHED INCHES; 303 CFS-HRS; 25.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 11
OUTPUT HYDROGRAPH = 5 AREA = .05 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0667 HOURS

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.09 81.4 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.14 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 12
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.29 193.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.71 WATERSHED INCHES; 409 CFS-HRS; 33.8 ACRE-FEET.

OPERATION RESVOR STRUCTURE 3
INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 4
SURFACE ELEVATION = 1355.00

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.42 189.2 1358.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.71 WATERSHED INCHES; 409 CFS-HRS; 33.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 13
OUTPUT HYDROGRAPH = 5 AREA = .02 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0444 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

```
      12.01                             27.5                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.14 WATERSHED INCHES;      32 CFS-HRS;       2.7 ACRE-FEET.


OPERATION ADDHYD   XSECTION  14
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.39                            196.9                       (NULL)
1
TR20 ------------------------------------------------------------------- SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
16:23:58                    PASS   2   JOB NO.   1                      PAGE  17


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.74 WATERSHED INCHES;     442 CFS-HRS;      36.5 ACRE-FEET.


OPERATION RESVOR   STRUCTURE  4
        INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
        SURFACE ELEVATION =  1351.00

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.59                            185.5                        1353.04

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.74 WATERSHED INCHES;     442 CFS-HRS;      36.5 ACRE-FEET.


OPERATION RUNOFF   XSECTION  15
        OUTPUT HYDROGRAPH =  5      AREA =    .01 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .25 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0333 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      11.97                             24.3                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.15 WATERSHED INCHES;      27 CFS-HRS;       2.2 ACRE-FEET.


OPERATION ADDHYD   XSECTION  16
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.58                            189.0                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.76 WATERSHED INCHES;     469 CFS-HRS;      38.7 ACRE-FEET.


OPERATION RUNOFF   XSECTION  17
        OUTPUT HYDROGRAPH =  4      AREA =    .03 SQ MI
        INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                             49.8                       (RUNOFF)
```

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.24 WATERSHED INCHES; 59 CFS-HRS; 4.9 ACRE-FEET.

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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OPERATION ADDHYD XSECTION 18
INPUT HYDROGRAPHS 4,6 OUTPUT HYDROGRAPH 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.54	198.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.81 WATERSHED INCHES; 527 CFS-HRS; 43.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 19
INPUT HYDROGRAPHS 5,7 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.51	573.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.62 WATERSHED INCHES; 1816 CFS-HRS; 150.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 20
OUTPUT HYDROGRAPH = 4 AREA = .12 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0667 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	186.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.24 WATERSHED INCHES; 244 CFS-HRS; 20.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 21
OUTPUT HYDROGRAPH = 5 AREA = .14 SQ MI
INPUT RUNOFF CURVE = 81. TIME OF CONCENTRATION = 1.27 HOURS
COMPUTED INTERNAL TIME INCREMENT = .1014 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.55	110.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.59 WATERSHED INCHES; 235 CFS-HRS; 19.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 22
INPUT HYDROGRAPHS 6,4 OUTPUT HYDROGRAPH 7

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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```
   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.31                        685.2                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.68 WATERSHED INCHES;    2060 CFS-HRS;     170.3 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23
        INPUT HYDROGRAPHS 7,5     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.34                        783.5                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.67 WATERSHED INCHES;    2295 CFS-HRS;     189.7 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  5
        INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 6
        SURFACE ELEVATION =  1345.50

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      13.08                        597.7                        1348.81

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.56 WATERSHED INCHES;    2203 CFS-HRS;     182.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  24
        OUTPUT HYDROGRAPH =  5      AREA =    .31 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =  1.00 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0925 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.38                        343.1                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.14 WATERSHED INCHES;     634 CFS-HRS;      52.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  25
        OUTPUT HYDROGRAPH =  7      AREA =    .03 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                         46.1                       (RUNOFF)
      17.36                          1.6                       (RUNOFF)
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   2   JOB NO.   1                      PAGE  20


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  2.59 WATERSHED INCHES;      53 CFS-HRS;       4.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  26
        INPUT HYDROGRAPHS 6,5     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
```

```
   12.80                        781.1                        (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.67 WATERSHED INCHES;    2836 CFS-HRS;     234.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  27
        INPUT HYDROGRAPHS 4,7     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.79                        786.9                        (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                2.67 WATERSHED INCHES;    2889 CFS-HRS;     238.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  28
        OUTPUT HYDROGRAPH =  4      AREA =    .09 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .31 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0416 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.00                        156.1                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.14 WATERSHED INCHES;     181 CFS-HRS;      14.9 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  7
        INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 5
        SURFACE ELEVATION =  1352.00

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.23                        104.4                         1356.20

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.13 WATERSHED INCHES;     180 CFS-HRS;      14.8 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   2   JOB NO.   1                      PAGE  21


 OPERATION RESVOR   STRUCTURE  8
        INPUT HYDROGRAPH 5        OUTPUT HYDROGRAPH 7
        SURFACE ELEVATION =  1352.00

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.33                         84.7                         1352.25

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.14 WATERSHED INCHES;     181 CFS-HRS;      14.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  29
        INPUT HYDROGRAPHS 7,6     OUTPUT HYDROGRAPH 3

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.77                        818.4                        (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
```

2.69 WATERSHED INCHES; 3070 CFS-HRS; 253.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 6
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 5
SURFACE ELEVATION = 1337.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.00	791.0	1341.86

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.69 WATERSHED INCHES; 3070 CFS-HRS; 253.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 30
OUTPUT HYDROGRAPH = 4 AREA = .00 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .00 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0012 HOURS

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.69 WATERSHED INCHES; 16 CFS-HRS; 253.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 31
INPUT HYDROGRAPHS 5,4 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.00	791.0	(NULL)

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
2.69 WATERSHED INCHES; 3070 CFS-HRS; 253.7 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
16:23:58 PASS 3 JOB NO. 1 PAGE 23

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 31
STARTING TIME = .00 RAIN DEPTH = 5.25 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .100 HOURS
ALTERNATE NO. =13 STORM NO. = 3 RAIN TABLE NO. = 7

OPERATION RUNOFF XSECTION 1
OUTPUT HYDROGRAPH = 1 AREA = .49 SQ MI
INPUT RUNOFF CURVE = 81. TIME OF CONCENTRATION = 2.33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .1033 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.19	314.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

3.21 WATERSHED INCHES; 1016 CFS-HRS; 83.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 2
OUTPUT HYDROGRAPH = 2 AREA = .14 SQ MI
INPUT RUNOFF CURVE = 82. TIME OF CONCENTRATION = 1.08 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0992 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	153.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.34 WATERSHED INCHES; 296 CFS-HRS; 24.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 3
OUTPUT HYDROGRAPH = 3 AREA = .07 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0667 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	127.9	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.80 WATERSHED INCHES; 169 CFS-HRS; 13.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 4
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.88	392.5	(NULL)

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
16:23:58 PASS 3 JOB NO. 1 PAGE 24

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.24 WATERSHED INCHES; 1312 CFS-HRS; 108.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 5
INPUT HYDROGRAPHS 3,4 OUTPUT HYDROGRAPH 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.74	416.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.29 WATERSHED INCHES; 1481 CFS-HRS; 122.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 1
INPUT HYDROGRAPH 5 OUTPUT HYDROGRAPH 6
SURFACE ELEVATION = 1354.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.90	412.8	1357.08

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.26 WATERSHED INCHES; 1465 CFS-HRS; 121.1 ACRE-FEET.

```
 OPERATION RUNOFF   XSECTION   6
         OUTPUT HYDROGRAPH =  7      AREA =    .06 SQ MI
         INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .42 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0556 HOURS

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.06                        127.6                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.90 WATERSHED INCHES;     158 CFS-HRS;      13.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   7
         INPUT HYDROGRAPHS 6,7     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.25                        450.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.31 WATERSHED INCHES;    1623 CFS-HRS;     134.1 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   3   JOB NO.   1                      PAGE  25


 OPERATION RUNOFF   XSECTION   8
         OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .67 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0889 HOURS

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.19                         34.2                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.20 WATERSHED INCHES;      51 CFS-HRS;       4.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   9
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.24                        486.0                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.31 WATERSHED INCHES;    1674 CFS-HRS;     138.3 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 7
         SURFACE ELEVATION =  1350.00

    PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.43                        467.4                      1353.82

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.17 WATERSHED INCHES;    1605 CFS-HRS;     132.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  10
```

```
        OUTPUT HYDROGRAPH =  4      AREA =    .18 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.21 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0964 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.50                        183.4                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.21 WATERSHED INCHES;     376 CFS-HRS;      31.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  11
        OUTPUT HYDROGRAPH =  5      AREA =    .05 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS
1
 TR20 ------------------------------------------------------------------------ SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   3   JOB NO.   1                      PAGE  26


   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.09                         97.2                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.80 WATERSHED INCHES;     128 CFS-HRS;      10.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  12
        INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.29                        238.4                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.34 WATERSHED INCHES;     504 CFS-HRS;      41.6 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  3
        INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
        SURFACE ELEVATION =  1355.00

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.39                        234.7                      1358.19

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.34 WATERSHED INCHES;     504 CFS-HRS;      41.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  13
        OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                         33.0                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.80 WATERSHED INCHES;      39 CFS-HRS;       3.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  14
```

INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.34	246.6	(NULL)

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.37 WATERSHED INCHES; 543 CFS-HRS; 44.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 4
INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 4
SURFACE ELEVATION = 1351.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.53	233.7	1353.37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.37 WATERSHED INCHES; 543 CFS-HRS; 44.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 15
OUTPUT HYDROGRAPH = 5 AREA = .01 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .25 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0333 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.97	29.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.79 WATERSHED INCHES; 33 CFS-HRS; 2.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 16
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.53	238.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.39 WATERSHED INCHES; 575 CFS-HRS; 47.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 17
OUTPUT HYDROGRAPH = 4 AREA = .03 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0444 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	59.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
3.90 WATERSHED INCHES; 71 CFS-HRS; 5.9 ACRE-FEET.

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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```
 OPERATION ADDHYD   XSECTION  18
         INPUT HYDROGRAPHS 4,6     OUTPUT HYDROGRAPH 5

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.48                         250.8                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.44 WATERSHED INCHES;     646 CFS-HRS;      53.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  19
         INPUT HYDROGRAPHS 5,7     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.45                         717.6                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.24 WATERSHED INCHES;    2251 CFS-HRS;     186.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20
         OUTPUT HYDROGRAPH =  4      AREA =    .12 SQ MI
         INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .50 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.09                         221.7                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.90 WATERSHED INCHES;     294 CFS-HRS;      24.3 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  21
         OUTPUT HYDROGRAPH =  5      AREA =    .14 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.27 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .1014 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.54                         136.7                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.21 WATERSHED INCHES;     291 CFS-HRS;      24.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  22
         INPUT HYDROGRAPHS 6,4     OUTPUT HYDROGRAPH 7
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   3   JOB NO.   1                      PAGE  29


    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.26                         865.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.31 WATERSHED INCHES;    2545 CFS-HRS;     210.3 ACRE-FEET.
```

```
 OPERATION ADDHYD   XSECTION  23
         INPUT HYDROGRAPHS 7,5     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.31                         982.9                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.30 WATERSHED INCHES;    2836 CFS-HRS;     234.4 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  5
         INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 6
         SURFACE ELEVATION =  1345.50

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.94                         782.5                       1349.10

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.19 WATERSHED INCHES;    2740 CFS-HRS;     226.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  24
         OUTPUT HYDROGRAPH =  5      AREA =    .31 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =  1.00 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0925 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.38                         414.6                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.80 WATERSHED INCHES;     767 CFS-HRS;      63.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  25
         OUTPUT HYDROGRAPH =  7      AREA =    .03 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                          56.7                       (RUNOFF)
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   3   JOB NO.   1                      PAGE  30


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.21 WATERSHED INCHES;      66 CFS-HRS;       5.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  26
         INPUT HYDROGRAPHS 6,5     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.69                        1054.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   3.30 WATERSHED INCHES;    3507 CFS-HRS;     289.8 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  27
         INPUT HYDROGRAPHS 4,7     OUTPUT HYDROGRAPH 6
```

```
   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.68                       1063.1                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.30 WATERSHED INCHES;    3573 CFS-HRS;     295.3 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  28
        OUTPUT HYDROGRAPH =  4      AREA =    .09 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .31 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0416 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.00                       187.1                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.80 WATERSHED INCHES;     218 CFS-HRS;      18.0 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  7
        INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 5
        SURFACE ELEVATION =  1352.00

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.16                       149.7                        1356.32

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.78 WATERSHED INCHES;     217 CFS-HRS;      17.9 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   3   JOB NO.   1                      PAGE  31



 OPERATION RESVOR   STRUCTURE  8
        INPUT HYDROGRAPH 5        OUTPUT HYDROGRAPH 7
        SURFACE ELEVATION =  1352.00

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.26                       129.7                        1352.39

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.80 WATERSHED INCHES;     218 CFS-HRS;      18.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  29
        INPUT HYDROGRAPHS 7,6     OUTPUT HYDROGRAPH 3

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.62                       1109.5                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  3.33 WATERSHED INCHES;    3791 CFS-HRS;     313.3 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  6
        INPUT HYDROGRAPH 3        OUTPUT HYDROGRAPH 5
        SURFACE ELEVATION =  1337.00

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
```

```
      12.95                        1030.0                        1342.77

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.33 WATERSHED INCHES;    3792 CFS-HRS;     313.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  30
        OUTPUT HYDROGRAPH =  4      AREA =    .00 SQ MI
        INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .00 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0012 HOURS

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.33 WATERSHED INCHES;      16 CFS-HRS;     313.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  31
        INPUT HYDROGRAPHS 5,4     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.95                        1030.0                        (NULL)
1
 TR20 ------------------------------------------------------------------------ SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   3   JOB NO.   1                      PAGE  32


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                3.33 WATERSHED INCHES;    3792 CFS-HRS;     313.4 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   3
1
 TR20 ------------------------------------------------------------------------ SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   4   JOB NO.   1                      PAGE  33



 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  31
   STARTING TIME =   .00       RAIN DEPTH =  7.80       RAIN DURATION =  1.00
   ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
   ALTERNATE NO. =14           STORM NO. = 4            RAIN TABLE NO. = 7


 OPERATION RUNOFF   XSECTION   1
        OUTPUT HYDROGRAPH =  1      AREA =    .49 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  2.33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .1033 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      13.17                         541.8                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.55 WATERSHED INCHES;    1758 CFS-HRS;     145.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   2
        OUTPUT HYDROGRAPH =  2      AREA =    .14 SQ MI
        INPUT RUNOFF CURVE = 82.    TIME OF CONCENTRATION =  1.08 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0992 HOURS
```

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	259.7	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 507 CFS-HRS; 41.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 3
OUTPUT HYDROGRAPH = 3 AREA = .07 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .50 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0667 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	205.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.25 WATERSHED INCHES; 278 CFS-HRS; 22.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 4
INPUT HYDROGRAPHS 1,2 OUTPUT HYDROGRAPH 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.85	676.6	(NULL)

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
16:23:58 PASS 4 JOB NO. 1 PAGE 34

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.59 WATERSHED INCHES; 2264 CFS-HRS; 187.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 5
INPUT HYDROGRAPHS 3,4 OUTPUT HYDROGRAPH 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.73	716.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.65 WATERSHED INCHES; 2542 CFS-HRS; 210.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 1
INPUT HYDROGRAPH 5 OUTPUT HYDROGRAPH 6
SURFACE ELEVATION = 1354.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.96	701.0	1358.37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.62 WATERSHED INCHES; 2526 CFS-HRS; 208.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 6
OUTPUT HYDROGRAPH = 7 AREA = .06 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .42 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0556 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.05	202.8	(RUNOFF)

```
   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                6.37 WATERSHED INCHES;     258 CFS-HRS;      21.3 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   7
         INPUT HYDROGRAPHS 6,7     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.33                         706.9                       (NULL)
      12.88                         723.9                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.68 WATERSHED INCHES;    2784 CFS-HRS;     230.1 ACRE-FEET.
1
 TR20 ---------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   4   JOB NO.   1                       PAGE  35



 OPERATION RUNOFF   XSECTION   8
         OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .67 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0889 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.18                          58.6                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.55 WATERSHED INCHES;      88 CFS-HRS;       7.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   9
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.27                         761.5                       (NULL)
      12.70                         742.4                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.67 WATERSHED INCHES;    2872 CFS-HRS;     237.3 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 7
         SURFACE ELEVATION =  1350.00

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.46                         747.3                      1354.51

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.54 WATERSHED INCHES;    2803 CFS-HRS;     231.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  10
         OUTPUT HYDROGRAPH =  4      AREA =    .18 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.21 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0964 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.50                         312.7                       (RUNOFF)
```

```
   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.55 WATERSHED INCHES;     650 CFS-HRS;      53.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  11
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   4   JOB NO.   1                      PAGE  36

         OUTPUT HYDROGRAPH =  5      AREA =    .05 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.09                         156.0                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                6.25 WATERSHED INCHES;     211 CFS-HRS;      17.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  12
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.28                         401.4                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.71 WATERSHED INCHES;     861 CFS-HRS;      71.1 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  3
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
         SURFACE ELEVATION =  1355.00

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.38                         395.8                        1358.75

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.71 WATERSHED INCHES;     861 CFS-HRS;      71.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  13
         OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                          52.9                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                6.24 WATERSHED INCHES;      64 CFS-HRS;       5.3 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  14
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.32                         415.0                       (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
```

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 925 CFS-HRS; 76.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 4
INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 4
SURFACE ELEVATION = 1351.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.51	396.0	1354.49

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.74 WATERSHED INCHES; 925 CFS-HRS; 76.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 15
OUTPUT HYDROGRAPH = 5 AREA = .01 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .25 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0333 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.97	46.6	(RUNOFF)
18.95	1.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.24 WATERSHED INCHES; 54 CFS-HRS; 4.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 16
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	403.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.77 WATERSHED INCHES; 978 CFS-HRS; 80.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 17
OUTPUT HYDROGRAPH = 4 AREA = .03 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0444 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	94.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.37 WATERSHED INCHES; 116 CFS-HRS; 9.5 ACRE-FEET.

1
TR20 ---------- SCS -

OPERATION ADDHYD XSECTION 18
INPUT HYDROGRAPHS 4,6 OUTPUT HYDROGRAPH 5

```
   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.41                        424.5                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.82 WATERSHED INCHES;    1094 CFS-HRS;      90.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  19
        INPUT HYDROGRAPHS 5,7     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.44                       1172.9                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.62 WATERSHED INCHES;    3897 CFS-HRS;     322.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20
        OUTPUT HYDROGRAPH =  4      AREA =    .12 SQ MI
        INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .50 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.09                        354.0                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  6.37 WATERSHED INCHES;     479 CFS-HRS;      39.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  21
        OUTPUT HYDROGRAPH =  5      AREA =    .14 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.27 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .1014 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.53                        235.7                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.55 WATERSHED INCHES;     504 CFS-HRS;      41.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  22
        INPUT HYDROGRAPHS 6,4     OUTPUT HYDROGRAPH 7
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   4   JOB NO.   1                      PAGE  39


   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.22                       1442.3                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.69 WATERSHED INCHES;    4376 CFS-HRS;     361.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23
        INPUT HYDROGRAPHS 7,5     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.26                       1629.7                       (NULL)
```

```
   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.67 WATERSHED INCHES;    4880 CFS-HRS;     403.3 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  5
        INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 6
        SURFACE ELEVATION =  1345.50

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.75                       1424.2                       1349.92

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.55 WATERSHED INCHES;    4777 CFS-HRS;     394.8 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  24
        OUTPUT HYDROGRAPH =  5      AREA =    .31 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =  1.00 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0925 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.37                       666.1                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                6.25 WATERSHED INCHES;    1261 CFS-HRS;     104.2 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  25
        OUTPUT HYDROGRAPH =  7      AREA =    .03 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                        96.3                        (RUNOFF)
1
 TR20 ------------------------------------------------------------------------ SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   4   JOB NO.   1                      PAGE  40


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.55 WATERSHED INCHES;     114 CFS-HRS;       9.4 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  26
        INPUT HYDROGRAPHS 6,5     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.53                       1995.8                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                5.69 WATERSHED INCHES;    6038 CFS-HRS;     499.0 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  27
        INPUT HYDROGRAPHS 4,7     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.52                       2015.5                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
```

5.68 WATERSHED INCHES; 6152 CFS-HRS; 508.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 28
OUTPUT HYDROGRAPH = 4 AREA = .09 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .31 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0416 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	299.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.25 WATERSHED INCHES; 359 CFS-HRS; 29.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 7
INPUT HYDROGRAPH 4 OUTPUT HYDROGRAPH 5
SURFACE ELEVATION = 1352.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.08	284.0	1356.67

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.22 WATERSHED INCHES; 357 CFS-HRS; 29.5 ACRE-FEET.

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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OPERATION RESVOR STRUCTURE 8
INPUT HYDROGRAPH 5 OUTPUT HYDROGRAPH 7
SURFACE ELEVATION = 1352.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	264.3	1352.79

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
6.25 WATERSHED INCHES; 359 CFS-HRS; 29.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 29
INPUT HYDROGRAPHS 7,6 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	2150.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 6511 CFS-HRS; 538.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 6
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 5
SURFACE ELEVATION = 1337.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.65	2053.4	1344.71

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
5.71 WATERSHED INCHES; 6509 CFS-HRS; 537.9 ACRE-FEET.

```
 OPERATION RUNOFF   XSECTION  30
        OUTPUT HYDROGRAPH =  4      AREA =    .00 SQ MI
        INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .00 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0012 HOURS

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.71 WATERSHED INCHES;      16 CFS-HRS;     537.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  31
        INPUT HYDROGRAPHS 5,4     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.65                        2053.4                       (NULL)
1
 TR20 ------------------------------------------------------------------------ SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                     PASS   4   JOB NO.   1                       PAGE  42


    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  5.71 WATERSHED INCHES;    6509 CFS-HRS;     537.9 ACRE-FEET.


 EXECUTIVE CONTROL ENDCMP    COMPUTATIONS COMPLETED FOR PASS   4
1
 TR20 ------------------------------------------------------------------------ SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                     PASS   5   JOB NO.   1                       PAGE  43



 EXECUTIVE CONTROL COMPUT    FROM XSECTION   1  TO XSECTION  31
    STARTING TIME =   .00       RAIN DEPTH =  9.35       RAIN DURATION =  1.00
    ANT. RUNOFF COND. = 2       MAIN TIME INCREMENT =   .100 HOURS
    ALTERNATE NO. =15           STORM NO. = 5            RAIN TABLE NO. = 7


 OPERATION RUNOFF   XSECTION   1
        OUTPUT HYDROGRAPH =  1      AREA =    .49 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  2.33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .1033 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       13.16                        681.8                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.02 WATERSHED INCHES;    2223 CFS-HRS;     183.7 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   2
        OUTPUT HYDROGRAPH =  2      AREA =    .14 SQ MI
        INPUT RUNOFF CURVE = 82.    TIME OF CONCENTRATION =  1.08 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0992 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.42                        324.3                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.19 WATERSHED INCHES;     638 CFS-HRS;      52.8 ACRE-FEET.
```

```
 OPERATION RUNOFF   XSECTION   3
        OUTPUT HYDROGRAPH =  3      AREA =    .07 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.09                       252.9                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 7.76 WATERSHED INCHES;     345 CFS-HRS;      28.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   4
        INPUT HYDROGRAPHS 1,2     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.84                       851.1                       (NULL)
1
 TR20 ------------------------------------------------------------------------ SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 7.06 WATERSHED INCHES;    2862 CFS-HRS;     236.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   5
        INPUT HYDROGRAPHS 3,4     OUTPUT HYDROGRAPH 5

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.73                       900.2                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 7.13 WATERSHED INCHES;    3206 CFS-HRS;     265.0 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  1
        INPUT HYDROGRAPH 5        OUTPUT HYDROGRAPH 6
        SURFACE ELEVATION =  1354.00

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.97                       878.2                        1359.11

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 7.09 WATERSHED INCHES;    3190 CFS-HRS;     263.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION   6
        OUTPUT HYDROGRAPH =  7      AREA =    .06 SQ MI
        INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .42 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0556 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.05                       248.0                       (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                 7.89 WATERSHED INCHES;     320 CFS-HRS;      26.4 ACRE-FEET.
```

```
 OPERATION ADDHYD   XSECTION   7
         INPUT HYDROGRAPHS 6,7     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.90                         905.4                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.16 WATERSHED INCHES;    3510 CFS-HRS;     290.1 ACRE-FEET.
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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 OPERATION RUNOFF   XSECTION   8
         OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .67 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0889 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.19                          74.1                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.03 WATERSHED INCHES;     111 CFS-HRS;       9.2 ACRE-FEET.


 OPERATION ADDHYD   XSECTION   9
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.24                         932.9                       (NULL)
       12.79                         926.7                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.15 WATERSHED INCHES;    3621 CFS-HRS;     299.2 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  2
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 7
         SURFACE ELEVATION =  1350.00

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.89                         925.0                        1354.92

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.02 WATERSHED INCHES;    3552 CFS-HRS;     293.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  10
         OUTPUT HYDROGRAPH =  4      AREA =    .18 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.21 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0964 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.49                         393.0                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.02 WATERSHED INCHES;     822 CFS-HRS;      67.9 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  11
```

```
1
 TR20 ------------------------------------------------------------------- SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                    PASS   5   JOB NO.   1                     PAGE  46

         OUTPUT HYDROGRAPH =  5      AREA =    .05 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .50 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.09                         192.2                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.76 WATERSHED INCHES;     262 CFS-HRS;      21.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  12
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.29                         502.1                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.19 WATERSHED INCHES;    1084 CFS-HRS;      89.6 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  3
         INPUT HYDROGRAPH 6        OUTPUT HYDROGRAPH 4
         SURFACE ELEVATION =  1355.00

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.38                         496.0                        1359.08

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.19 WATERSHED INCHES;    1084 CFS-HRS;      89.6 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  13
         OUTPUT HYDROGRAPH =  5      AREA =    .02 SQ MI
         INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .33 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.01                          64.8                       (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.76 WATERSHED INCHES;      80 CFS-HRS;       6.6 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  14
         INPUT HYDROGRAPHS 4,5     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.32                         519.2                       (NULL)
1
 TR20 ------------------------------------------------------------------- SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
```

7.23 WATERSHED INCHES; 1164 CFS-HRS; 96.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 4
INPUT HYDROGRAPH 6 OUTPUT HYDROGRAPH 4
SURFACE ELEVATION = 1351.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.52	494.0	1355.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.22 WATERSHED INCHES; 1164 CFS-HRS; 96.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 15
OUTPUT HYDROGRAPH = 5 AREA = .01 SQ MI
INPUT RUNOFF CURVE = 87. TIME OF CONCENTRATION = .25 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0333 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.97	57.2	(RUNOFF)
18.95	1.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.77 WATERSHED INCHES; 67 CFS-HRS; 5.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 16
INPUT HYDROGRAPHS 4,5 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.51	502.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.25 WATERSHED INCHES; 1231 CFS-HRS; 101.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 17
OUTPUT HYDROGRAPH = 4 AREA = .03 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .33 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0444 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	115.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.89 WATERSHED INCHES; 143 CFS-HRS; 11.8 ACRE-FEET.

1

OPERATION ADDHYD XSECTION 18
INPUT HYDROGRAPHS 4,6 OUTPUT HYDROGRAPH 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	528.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.31 WATERSHED INCHES; 1374 CFS-HRS; 113.5 ACRE-FEET.

```
 OPERATION ADDHYD   XSECTION  19
         INPUT HYDROGRAPHS 5,7     OUTPUT HYDROGRAPH 6

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.47                        1441.3                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.10 WATERSHED INCHES;    4926 CFS-HRS;     407.0 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  20
         OUTPUT HYDROGRAPH =  4      AREA =    .12 SQ MI
         INPUT RUNOFF CURVE = 88.    TIME OF CONCENTRATION =   .50 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .0667 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.09                        433.1                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.88 WATERSHED INCHES;     594 CFS-HRS;      49.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  21
         OUTPUT HYDROGRAPH =  5      AREA =    .14 SQ MI
         INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =  1.27 HOURS
         COMPUTED INTERNAL TIME INCREMENT =  .1014 HOURS

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.53                        296.5                        (RUNOFF)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.03 WATERSHED INCHES;     637 CFS-HRS;      52.7 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  22
         INPUT HYDROGRAPHS 6,4     OUTPUT HYDROGRAPH 7
1
 TR20 ------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.22                        1770.7                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.18 WATERSHED INCHES;    5519 CFS-HRS;     456.1 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  23
         INPUT HYDROGRAPHS 7,5     OUTPUT HYDROGRAPH 4

    PEAK TIME(HRS)             PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
       12.27                        2009.0                       (NULL)

    RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                   7.16 WATERSHED INCHES;    6157 CFS-HRS;     508.8 ACRE-FEET.


 OPERATION RESVOR   STRUCTURE  5
```

```
        INPUT HYDROGRAPH 4        OUTPUT HYDROGRAPH 6
        SURFACE ELEVATION =  1345.50

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.71                       1797.2                       1350.33

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.04 WATERSHED INCHES;    6051 CFS-HRS;     500.1 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  24
        OUTPUT HYDROGRAPH =  5      AREA =    .31 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =  1.00 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0925 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.37                       819.5                        (RUNOFF)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.77 WATERSHED INCHES;    1567 CFS-HRS;     129.5 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  25
        OUTPUT HYDROGRAPH =  7      AREA =    .03 SQ MI
        INPUT RUNOFF CURVE = 81.    TIME OF CONCENTRATION =   .33 HOURS
        COMPUTED INTERNAL TIME INCREMENT =  .0444 HOURS

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.01                       120.4                        (RUNOFF)
1
 TR20 ------------------------------------------------------------------- SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
 16:23:58                   PASS   5   JOB NO.   1                      PAGE  50


   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.02 WATERSHED INCHES;     144 CFS-HRS;      11.9 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  26
        INPUT HYDROGRAPHS 6,5     OUTPUT HYDROGRAPH 4

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.51                       2519.4                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.17 WATERSHED INCHES;    7618 CFS-HRS;     629.5 ACRE-FEET.


 OPERATION ADDHYD   XSECTION  27
        INPUT HYDROGRAPHS 4,7     OUTPUT HYDROGRAPH 6

   PEAK TIME(HRS)            PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
      12.50                       2544.8                       (NULL)

   RUNOFF ABOVE BASEFLOW  (BASEFLOW =    .00 CFS)
                  7.17 WATERSHED INCHES;    7761 CFS-HRS;     641.4 ACRE-FEET.


 OPERATION RUNOFF   XSECTION  28
        OUTPUT HYDROGRAPH =  4      AREA =    .09 SQ MI
        INPUT RUNOFF CURVE = 87.    TIME OF CONCENTRATION =   .31 HOURS
```

COMPUTED INTERNAL TIME INCREMENT = .0416 HOURS

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	367.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.77 WATERSHED INCHES; 446 CFS-HRS; 36.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 7
INPUT HYDROGRAPH 4 OUTPUT HYDROGRAPH 5
SURFACE ELEVATION = 1352.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	352.2	1356.86

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.75 WATERSHED INCHES; 445 CFS-HRS; 36.8 ACRE-FEET.

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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OPERATION RESVOR STRUCTURE 8
INPUT HYDROGRAPH 5 OUTPUT HYDROGRAPH 7
SURFACE ELEVATION = 1352.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	332.3	1353.00

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.76 WATERSHED INCHES; 446 CFS-HRS; 36.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 29
INPUT HYDROGRAPHS 7,6 OUTPUT HYDROGRAPH 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.42	2724.3	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.20 WATERSHED INCHES; 8207 CFS-HRS; 678.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 6
INPUT HYDROGRAPH 3 OUTPUT HYDROGRAPH 5
SURFACE ELEVATION = 1337.00

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.61	2613.3	1345.54

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.20 WATERSHED INCHES; 8209 CFS-HRS; 678.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 30
OUTPUT HYDROGRAPH = 4 AREA = .00 SQ MI
INPUT RUNOFF CURVE = 88. TIME OF CONCENTRATION = .00 HOURS
COMPUTED INTERNAL TIME INCREMENT = .0012 HOURS

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.20 WATERSHED INCHES; 16 CFS-HRS; 678.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 31
INPUT HYDROGRAPHS 5,4 OUTPUT HYDROGRAPH 6

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.61	2613.3	(NULL)

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)
7.20 WATERSHED INCHES; 8209 CFS-HRS; 678.4 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 5

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
RAINFALL OF 3.50 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
RAINTABLE NUMBER 7, ARC 2							
MAIN TIME INCREMENT .100 HOURS							
ALTERNATE 11 STORM 1							
XSECTION 1	RUNOFF	.49	1.71	---	13.22	165	336.7
XSECTION 2	RUNOFF	.14	1.81	---	12.43	84	600.0
XSECTION 3	RUNOFF	.07	2.18	---	12.10	75	1071.4
XSECTION 4	ADDHYD	.63	1.73	---	12.91	207	328.6
XSECTION 5	ADDHYD	.70	1.77	---	12.76	221	315.7
STRUCTURE 1	RESVOR	.70	1.74	1356.46	12.84	220	314.3
XSECTION 6	RUNOFF	.06	2.27	---	12.06	76	1266.7
XSECTION 7	ADDHYD	.76	1.78	---	12.25	243	319.7
XSECTION 8	RUNOFF	.02	1.70	---	12.19	18	900.0
XSECTION 9	ADDHYD	.78	1.78	---	12.25	263	337.2
STRUCTURE 2	RESVOR	.78	1.65	1353.15	12.73	240	307.7
XSECTION 10	RUNOFF	.18	1.71	---	12.52	97	538.9
XSECTION 11	RUNOFF	.05	2.18	---	12.10	57	1140.0
XSECTION 12	ADDHYD	.23	1.81	---	12.29	129	560.9
STRUCTURE 3	RESVOR	.23	1.81	1357.64	12.46	123	534.8

XSECTION	13	RUNOFF	.02	2.18	---	12.01	19	950.0
XSECTION	14	ADDHYD	.25	1.84	---	12.43	128	512.0
STRUCTURE	4	RESVOR	.25	1.84	1352.46	12.67	118	472.0
XSECTION	15	RUNOFF	.01	2.18	---	11.97	17	1700.0
XSECTION	16	ADDHYD	.26	1.85	---	12.66	120	461.5
XSECTION	17	RUNOFF	.03	2.26	---	12.01	35	1166.7
XSECTION	18	ADDHYD	.29	1.89	---	12.63	126	434.5
XSECTION	19	ADDHYD	1.08	1.71	---	12.67	366	338.9
XSECTION	20	RUNOFF	.12	2.27	---	12.10	131	1091.7
XSECTION	21	RUNOFF	.14	1.71	---	12.56	72	514.3
XSECTION	22	ADDHYD	1.19	1.77	---	12.55	407	342.0
XSECTION	23	ADDHYD	1.33	1.76	---	12.55	478	359.4
STRUCTURE	5	RESVOR	1.33	1.66	1348.31	13.43	327	245.9

1
TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 11 STORM 1							
XSECTION 24	RUNOFF	.31	2.18	---	12.39	240	774.2
XSECTION 25	RUNOFF	.03	1.71	---	12.01	30	1000.0
XSECTION 26	ADDHYD	1.65	1.76	---	13.27	396	240.0
XSECTION 27	ADDHYD	1.68	1.76	---	13.26	399	237.5
XSECTION 28	RUNOFF	.09	2.18	---	12.00	110	1222.2
STRUCTURE 7	RESVOR	.09	2.18	1355.58	12.44	27	300.0
STRUCTURE 8	RESVOR	.09	2.18	1352.08	12.56	27	300.0
XSECTION 29	ADDHYD	1.77	1.78	---	13.26	424	239.5
STRUCTURE 6	RESVOR	1.77	1.78	1340.86	13.38	420	237.3
XSECTION 30	RUNOFF	.00	1.78	---	.00	0	********
XSECTION 31	ADDHYD	1.77	1.78	---	13.38	420	237.3
RAINFALL OF 4.55 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 12 STORM 2							
XSECTION 1	RUNOFF	.49	2.59	---	13.20	253	516.3
XSECTION 2	RUNOFF	.14	2.71	---	12.43	125	892.9
XSECTION 3	RUNOFF	.07	3.14	---	12.09	107	1528.6
XSECTION 4	ADDHYD	.63	2.62	---	12.89	316	501.6
XSECTION 5	ADDHYD	.70	2.67	---	12.75	337	481.4
STRUCTURE 1	RESVOR	.70	2.64	1356.82	12.83	336	480.0
XSECTION 6	RUNOFF	.06	3.24	---	12.06	107	1783.3

XSECTION	7	ADDHYD	.76	2.69	---	12.25	368	484.2
XSECTION	8	RUNOFF	.02	2.59	---	12.19	28	1400.0
XSECTION	9	ADDHYD	.78	2.68	---	12.24	395	506.4
STRUCTURE	2	RESVOR	.78	2.55	1353.55	12.47	376	482.1
XSECTION	10	RUNOFF	.18	2.59	---	12.51	148	822.2
XSECTION	11	RUNOFF	.05	3.14	---	12.09	81	1620.0
XSECTION	12	ADDHYD	.23	2.71	---	12.29	194	843.5
STRUCTURE	3	RESVOR	.23	2.71	1358.03	12.42	189	821.7

1

TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID		STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE	12	STORM	2					
XSECTION	13	RUNOFF	.02	3.14	---	12.01	27	1350.0
XSECTION	14	ADDHYD	.25	2.74	---	12.39	197	788.0
STRUCTURE	4	RESVOR	.25	2.74	1353.04	12.59	186	744.0
XSECTION	15	RUNOFF	.01	3.15	---	11.97	24	2400.0
XSECTION	16	ADDHYD	.26	2.76	---	12.58	189	726.9
XSECTION	17	RUNOFF	.03	3.24	---	12.01	50	1666.7
XSECTION	18	ADDHYD	.29	2.81	---	12.54	199	686.2
XSECTION	19	ADDHYD	1.08	2.62	---	12.51	574	531.5
XSECTION	20	RUNOFF	.12	3.24	---	12.09	186	1550.0
XSECTION	21	RUNOFF	.14	2.59	---	12.55	110	785.7
XSECTION	22	ADDHYD	1.19	2.68	---	12.31	685	575.6
XSECTION	23	ADDHYD	1.33	2.67	---	12.34	783	588.7
STRUCTURE	5	RESVOR	1.33	2.56	1348.81	13.08	598	449.6
XSECTION	24	RUNOFF	.31	3.14	---	12.38	343	1106.5
XSECTION	25	RUNOFF	.03	2.59	---	12.01	46	1533.3
XSECTION	26	ADDHYD	1.65	2.67	---	12.80	781	473.3
XSECTION	27	ADDHYD	1.68	2.67	---	12.79	787	468.5
XSECTION	28	RUNOFF	.09	3.14	---	12.00	156	1733.3
STRUCTURE	7	RESVOR	.09	3.13	1356.20	12.23	104	1155.6
STRUCTURE	8	RESVOR	.09	3.14	1352.25	12.33	85	944.4
XSECTION	29	ADDHYD	1.77	2.69	---	12.77	818	462.1
STRUCTURE	6	RESVOR	1.77	2.69	1341.86	13.00	791	446.9
XSECTION	30	RUNOFF	.00	2.69	---	.00	0	********
XSECTION	31	ADDHYD	1.77	2.69	---	13.00	791	446.9

RAINFALL OF 5.25 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 13 STORM 3

XSECTION	1	RUNOFF	.49	3.21	---	13.19	314	640.8
XSECTION	2	RUNOFF	.14	3.34	---	12.43	154	1100.0

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TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 13 STORM 3							
XSECTION 3	RUNOFF	.07	3.80	---	12.09	128	1828.6
XSECTION 4	ADDHYD	.63	3.24	---	12.88	392	622.2
XSECTION 5	ADDHYD	.70	3.29	---	12.74	417	595.7
STRUCTURE 1	RESVOR	.70	3.26	1357.08	12.90	413	590.0
XSECTION 6	RUNOFF	.06	3.90	---	12.06	128	2133.3
XSECTION 7	ADDHYD	.76	3.31	---	12.25	450	592.1
XSECTION 8	RUNOFF	.02	3.20	---	12.19	34	1700.0
XSECTION 9	ADDHYD	.78	3.31	---	12.24	486	623.1
STRUCTURE 2	RESVOR	.78	3.17	1353.82	12.43	467	598.7
XSECTION 10	RUNOFF	.18	3.21	---	12.50	183	1016.7
XSECTION 11	RUNOFF	.05	3.80	---	12.09	97	1940.0
XSECTION 12	ADDHYD	.23	3.34	---	12.29	238	1034.8
STRUCTURE 3	RESVOR	.23	3.34	1358.19	12.39	235	1021.7
XSECTION 13	RUNOFF	.02	3.80	---	12.01	33	1650.0
XSECTION 14	ADDHYD	.25	3.37	---	12.34	247	988.0
STRUCTURE 4	RESVOR	.25	3.37	1353.37	12.53	234	936.0
XSECTION 15	RUNOFF	.01	3.79	---	11.97	29	2900.0
XSECTION 16	ADDHYD	.26	3.39	---	12.53	238	915.4
XSECTION 17	RUNOFF	.03	3.90	---	12.01	60	2000.0
XSECTION 18	ADDHYD	.29	3.44	---	12.48	251	865.5
XSECTION 19	ADDHYD	1.08	3.24	---	12.45	718	664.8
XSECTION 20	RUNOFF	.12	3.90	---	12.09	222	1850.0
XSECTION 21	RUNOFF	.14	3.21	---	12.54	137	978.6
XSECTION 22	ADDHYD	1.19	3.31	---	12.26	865	726.9
XSECTION 23	ADDHYD	1.33	3.30	---	12.31	983	739.1
STRUCTURE 5	RESVOR	1.33	3.19	1349.10	12.94	783	588.7
XSECTION 24	RUNOFF	.31	3.80	---	12.38	415	1338.7
XSECTION 25	RUNOFF	.03	3.21	---	12.01	57	1900.0
XSECTION 26	ADDHYD	1.65	3.30	---	12.69	1054	638.8
XSECTION 27	ADDHYD	1.68	3.30	---	12.68	1063	632.7

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TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 13 STORM 3							
XSECTION 28	RUNOFF	.09	3.80	---	12.00	187	2077.8
STRUCTURE 7	RESVOR	.09	3.78	1356.32	12.16	150	1666.7
STRUCTURE 8	RESVOR	.09	3.80	1352.39	12.26	130	1444.4
XSECTION 29	ADDHYD	1.77	3.33	---	12.62	1110	627.1
STRUCTURE 6	RESVOR	1.77	3.33	1342.77	12.95	1030	581.9
XSECTION 30	RUNOFF	.00	3.33	---	.00	0	********
XSECTION 31	ADDHYD	1.77	3.33	---	12.95	1030	581.9

RAINFALL OF 7.80 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 14 STORM 4							
XSECTION 1	RUNOFF	.49	5.55	---	13.17	542	1106.1
XSECTION 2	RUNOFF	.14	5.71	---	12.42	260	1857.1
XSECTION 3	RUNOFF	.07	6.25	---	12.09	205	2928.6
XSECTION 4	ADDHYD	.63	5.59	---	12.85	677	1074.6
XSECTION 5	ADDHYD	.70	5.65	---	12.73	717	1024.3
STRUCTURE 1	RESVOR	.70	5.62	1358.37	12.96	701	1001.4
XSECTION 6	RUNOFF	.06	6.37	---	12.05	203	3383.3
XSECTION 7	ADDHYD	.76	5.68	---	12.88	724	952.6
XSECTION 8	RUNOFF	.02	5.55	---	12.18	59	2950.0
XSECTION 9	ADDHYD	.78	5.67	---	12.27	762	976.9
STRUCTURE 2	RESVOR	.78	5.54	1354.51	12.46	747	957.7
XSECTION 10	RUNOFF	.18	5.55	---	12.50	313	1738.9
XSECTION 11	RUNOFF	.05	6.25	---	12.09	156	3120.0
XSECTION 12	ADDHYD	.23	5.71	---	12.28	401	1743.5
STRUCTURE 3	RESVOR	.23	5.71	1358.75	12.38	396	1721.7
XSECTION 13	RUNOFF	.02	6.24	---	12.01	53	2650.0
XSECTION 14	ADDHYD	.25	5.74	---	12.32	415	1660.0
STRUCTURE 4	RESVOR	.25	5.74	1354.49	12.51	396	1584.0
XSECTION 15	RUNOFF	.01	6.24	---	11.97	47	4700.0

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TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 14 STORM 4							
XSECTION 16	ADDHYD	.26	5.77	---	12.50	403	1550.0
XSECTION 17	RUNOFF	.03	6.37	---	12.01	94	3133.3
XSECTION 18	ADDHYD	.29	5.82	---	12.41	425	1465.5
XSECTION 19	ADDHYD	1.08	5.62	---	12.44	1173	1086.1
XSECTION 20	RUNOFF	.12	6.37	---	12.09	354	2950.0
XSECTION 21	RUNOFF	.14	5.55	---	12.53	236	1685.7
XSECTION 22	ADDHYD	1.19	5.69	---	12.22	1442	1211.8
XSECTION 23	ADDHYD	1.33	5.67	---	12.26	1630	1225.6
STRUCTURE 5	RESVOR	1.33	5.55	1349.92	12.75	1424	1070.7
XSECTION 24	RUNOFF	.31	6.25	---	12.37	666	2148.4
XSECTION 25	RUNOFF	.03	5.55	---	12.01	96	3200.0
XSECTION 26	ADDHYD	1.65	5.69	---	12.53	1996	1209.7
XSECTION 27	ADDHYD	1.68	5.68	---	12.52	2015	1199.4
XSECTION 28	RUNOFF	.09	6.25	---	11.99	300	3333.3
STRUCTURE 7	RESVOR	.09	6.22	1356.67	12.08	284	3155.6
STRUCTURE 8	RESVOR	.09	6.25	1352.79	12.17	264	2933.3
XSECTION 29	ADDHYD	1.77	5.71	---	12.44	2151	1215.3
STRUCTURE 6	RESVOR	1.77	5.71	1344.71	12.65	2053	1159.9
XSECTION 30	RUNOFF	.00	5.71	---	.00	0	********
XSECTION 31	ADDHYD	1.77	5.71	---	12.65	2053	1159.9

RAINFALL OF 9.35 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 15 STORM 5							
XSECTION 1	RUNOFF	.49	7.02	---	13.16	682	1391.8
XSECTION 2	RUNOFF	.14	7.19	---	12.42	324	2314.3
XSECTION 3	RUNOFF	.07	7.76	---	12.09	253	3614.3
XSECTION 4	ADDHYD	.63	7.06	---	12.84	851	1350.8
XSECTION 5	ADDHYD	.70	7.13	---	12.73	900	1285.7
STRUCTURE 1	RESVOR	.70	7.09	1359.11	12.97	878	1254.3

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TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE	STANDARD CONTROL	DRAINAGE	RUNOFF	PEAK DISCHARGE

ID	OPERATION	AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 15 STORM 5							
XSECTION 6	RUNOFF	.06	7.89	---	12.05	248	4133.3
XSECTION 7	ADDHYD	.76	7.16	---	12.90	905	1190.8
XSECTION 8	RUNOFF	.02	7.03	---	12.19	74	3700.0
XSECTION 9	ADDHYD	.78	7.15	---	12.24	933	1196.2
STRUCTURE 2	RESVOR	.78	7.02	1354.92	12.89	925	1185.9
XSECTION 10	RUNOFF	.18	7.02	---	12.49	393	2183.3
XSECTION 11	RUNOFF	.05	7.76	---	12.09	192	3840.0
XSECTION 12	ADDHYD	.23	7.19	---	12.29	502	2182.6
STRUCTURE 3	RESVOR	.23	7.19	1359.08	12.38	496	2156.5
XSECTION 13	RUNOFF	.02	7.76	---	12.01	65	3250.0
XSECTION 14	ADDHYD	.25	7.23	---	12.32	519	2076.0
STRUCTURE 4	RESVOR	.25	7.22	1355.17	12.52	494	1976.0
XSECTION 15	RUNOFF	.01	7.77	---	11.97	57	5700.0
XSECTION 16	ADDHYD	.26	7.25	---	12.51	503	1934.6
XSECTION 17	RUNOFF	.03	7.89	---	12.01	116	3866.7
XSECTION 18	ADDHYD	.29	7.31	---	12.41	528	1820.7
XSECTION 19	ADDHYD	1.08	7.10	---	12.47	1441	1334.3
XSECTION 20	RUNOFF	.12	7.88	---	12.09	433	3608.3
XSECTION 21	RUNOFF	.14	7.03	---	12.53	297	2121.4
XSECTION 22	ADDHYD	1.19	7.18	---	12.22	1771	1488.2
XSECTION 23	ADDHYD	1.33	7.16	---	12.27	2009	1510.5
STRUCTURE 5	RESVOR	1.33	7.04	1350.33	12.71	1797	1351.1
XSECTION 24	RUNOFF	.31	7.77	---	12.37	820	2645.2
XSECTION 25	RUNOFF	.03	7.02	---	12.01	120	4000.0
XSECTION 26	ADDHYD	1.65	7.17	---	12.51	2519	1526.7
XSECTION 27	ADDHYD	1.68	7.17	---	12.50	2545	1514.9
XSECTION 28	RUNOFF	.09	7.77	---	11.99	367	4077.8
STRUCTURE 7	RESVOR	.09	7.75	1356.86	12.07	352	3911.1
STRUCTURE 8	RESVOR	.09	7.76	1353.00	12.16	332	3688.9
XSECTION 29	ADDHYD	1.77	7.20	---	12.42	2724	1539.0

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TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE ELEVATION (FT)	PEAK DISCHARGE TIME (HR)	PEAK DISCHARGE RATE (CFS)	PEAK DISCHARGE RATE (CSM)
ALTERNATE 15 STORM 5							

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STRUCTURE  6  RESVOR     1.77     7.20    1345.54     12.61     2613   1476.3
XSECTION  30  RUNOFF      .00     7.20        ---       .00        0 ********
XSECTION  31  ADDHYD     1.77     7.20        ---     12.61     2613   1476.3
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 TR20 ------------------------------------------------------------------- SCS -
         KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
STRUCTURE	8	.09					
ALTERNATE	11		27	********	********	********	********
ALTERNATE	12		********	85	********	********	********
ALTERNATE	13		********	********	130	********	********
ALTERNATE	14		********	********	********	264	********
ALTERNATE	15		********	********	********	********	332
STRUCTURE	7	.09					
ALTERNATE	11		27	********	********	********	********
ALTERNATE	12		********	104	********	********	********
ALTERNATE	13		********	********	150	********	********
ALTERNATE	14		********	********	********	284	********
ALTERNATE	15		********	********	********	********	352
STRUCTURE	6	1.77					
ALTERNATE	11		420	********	********	********	********
ALTERNATE	12		********	791	********	********	********
ALTERNATE	13		********	********	1030	********	********
ALTERNATE	14		********	********	********	2053	********
ALTERNATE	15		********	********	********	********	2613
STRUCTURE	5	1.33					
ALTERNATE	11		327	********	********	********	********
ALTERNATE	12		********	598	********	********	********
ALTERNATE	13		********	********	783	********	********
ALTERNATE	14		********	********	********	1424	********
ALTERNATE	15		********	********	********	********	1797
STRUCTURE	4	.25					
ALTERNATE	11		118	********	********	********	********
ALTERNATE	12		********	186	********	********	********
ALTERNATE	13		********	********	234	********	********
ALTERNATE	14		********	********	********	396	********
ALTERNATE	15		********	********	********	********	494
STRUCTURE	3	.23					

ALTERNATE	11	123	*********	*********	*********	*********
ALTERNATE	12	*********	189	*********	*********	*********
ALTERNATE	13	*********	*********	235	*********	*********
ALTERNATE	14	*********	*********	*********	396	*********

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SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
STRUCTURE	3	.23					
ALTERNATE	15		*********	*********	*********	*********	496
STRUCTURE	2	.78					
ALTERNATE	11		240	*********	*********	*********	*********
ALTERNATE	12		*********	376	*********	*********	*********
ALTERNATE	13		*********	*********	467	*********	*********
ALTERNATE	14		*********	*********	*********	747	*********
ALTERNATE	15		*********	*********	*********	*********	925
STRUCTURE	1	.70					
ALTERNATE	11		220	*********	*********	*********	*********
ALTERNATE	12		*********	336	*********	*********	*********
ALTERNATE	13		*********	*********	413	*********	*********
ALTERNATE	14		*********	*********	*********	701	*********
ALTERNATE	15		*********	*********	*********	*********	878
XSECTION	1	.49					
ALTERNATE	11		165	*********	*********	*********	*********
ALTERNATE	12		*********	253	*********	*********	*********
ALTERNATE	13		*********	*********	314	*********	*********
ALTERNATE	14		*********	*********	*********	542	*********
ALTERNATE	15		*********	*********	*********	*********	682
XSECTION	2	.14					
ALTERNATE	11		84	*********	*********	*********	*********
ALTERNATE	12		*********	125	*********	*********	*********
ALTERNATE	13		*********	*********	154	*********	*********
ALTERNATE	14		*********	*********	*********	260	*********
ALTERNATE	15		*********	*********	*********	*********	324
XSECTION	3	.07					
ALTERNATE	11		75	*********	*********	*********	*********
ALTERNATE	12		*********	107	*********	*********	*********
ALTERNATE	13		*********	*********	128	*********	*********
ALTERNATE	14		*********	*********	*********	205	*********

ALTERNATE	15	*********	*********	*********	*********	253

XSECTION 4 .63

ALTERNATE	11		207	*********	*********	*********
ALTERNATE	12	*********	316	*********	*********	*********

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TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION	4	.63					
ALTERNATE	13		*********	*********	392	*********	*********
ALTERNATE	14		*********	*********	*********	677	*********
ALTERNATE	15		*********	*********	*********	*********	851
XSECTION	5	.70					
ALTERNATE	11		221	*********	*********	*********	*********
ALTERNATE	12		*********	337	*********	*********	*********
ALTERNATE	13		*********	*********	417	*********	*********
ALTERNATE	14		*********	*********	*********	717	*********
ALTERNATE	15		*********	*********	*********	*********	900
XSECTION	6	.06					
ALTERNATE	11		76	*********	*********	*********	*********
ALTERNATE	12		*********	107	*********	*********	*********
ALTERNATE	13		*********	*********	128	*********	*********
ALTERNATE	14		*********	*********	*********	203	*********
ALTERNATE	15		*********	*********	*********	*********	248
XSECTION	7	.76					
ALTERNATE	11		243	*********	*********	*********	*********
ALTERNATE	12		*********	368	*********	*********	*********
ALTERNATE	13		*********	*********	450	*********	*********
ALTERNATE	14		*********	*********	*********	724	*********
ALTERNATE	15		*********	*********	*********	*********	905
XSECTION	8	.02					
ALTERNATE	11		18	*********	*********	*********	*********
ALTERNATE	12		*********	28	*********	*********	*********
ALTERNATE	13		*********	*********	34	*********	*********
ALTERNATE	14		*********	*********	*********	59	*********
ALTERNATE	15		*********	*********	*********	*********	74
XSECTION	9	.78					

ALTERNATE	11	263	*********	*********	*********	*********
ALTERNATE	12	*********	395	*********	*********	*********
ALTERNATE	13	*********	*********	486	*********	*********
ALTERNATE	14	*********	*********	*********	762	*********
ALTERNATE	15	*********	*********	*********	*********	933

XSECTION 10 .18

1

TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION	10	.18					
ALTERNATE	11		97	*********	*********	*********	*********
ALTERNATE	12		*********	148	*********	*********	*********
ALTERNATE	13		*********	*********	183	*********	*********
ALTERNATE	14		*********	*********	*********	313	*********
ALTERNATE	15		*********	*********	*********	*********	393
XSECTION	11	.05					
ALTERNATE	11		57	*********	*********	*********	*********
ALTERNATE	12		*********	81	*********	*********	*********
ALTERNATE	13		*********	*********	97	*********	*********
ALTERNATE	14		*********	*********	*********	156	*********
ALTERNATE	15		*********	*********	*********	*********	192
XSECTION	12	.23					
ALTERNATE	11		129	*********	*********	*********	*********
ALTERNATE	12		*********	194	*********	*********	*********
ALTERNATE	13		*********	*********	238	*********	*********
ALTERNATE	14		*********	*********	*********	401	*********
ALTERNATE	15		*********	*********	*********	*********	502
XSECTION	13	.02					
ALTERNATE	11		19	*********	*********	*********	*********
ALTERNATE	12		*********	27	*********	*********	*********
ALTERNATE	13		*********	*********	33	*********	*********
ALTERNATE	14		*********	*********	*********	53	*********
ALTERNATE	15		*********	*********	*********	*********	65
XSECTION	14	.25					
ALTERNATE	11		128	*********	*********	*********	*********
ALTERNATE	12		*********	197	*********	*********	*********
ALTERNATE	13		*********	*********	247	*********	*********
ALTERNATE	14		*********	*********	*********	415	*********

ALTERNATE	15	********	********	********	********	519

XSECTION 15 .01

ALTERNATE	11	17	********	********	********	********
ALTERNATE	12	********	24	********	********	********
ALTERNATE	13	********	********	29	********	********
ALTERNATE	14	********	********	********	47	********
ALTERNATE	15	********	********	********	********	57

1

TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION 16		.26					
ALTERNATE	11		120	********	********	********	********
ALTERNATE	12		********	189	********	********	********
ALTERNATE	13		********	********	238	********	********
ALTERNATE	14		********	********	********	403	********
ALTERNATE	15		********	********	********	********	503
XSECTION 17		.03					
ALTERNATE	11		35	********	********	********	********
ALTERNATE	12		********	50	********	********	********
ALTERNATE	13		********	********	60	********	********
ALTERNATE	14		********	********	********	94	********
ALTERNATE	15		********	********	********	********	116
XSECTION 18		.29					
ALTERNATE	11		126	********	********	********	********
ALTERNATE	12		********	199	********	********	********
ALTERNATE	13		********	********	251	********	********
ALTERNATE	14		********	********	********	425	********
ALTERNATE	15		********	********	********	********	528
XSECTION 19		1.08					
ALTERNATE	11		366	********	********	********	********
ALTERNATE	12		********	574	********	********	********
ALTERNATE	13		********	********	718	********	********
ALTERNATE	14		********	********	********	1173	********
ALTERNATE	15		********	********	********	********	1441
XSECTION 20		.12					
ALTERNATE	11		131	********	********	********	********
ALTERNATE	12		********	186	********	********	********
ALTERNATE	13		********	********	222	********	********

ALTERNATE	14	*********	*********	*********	354	*********
ALTERNATE	15	*********	*********	*********	*********	433

XSECTION	21	.14				
ALTERNATE	11	72	*********	*********	*********	*********
ALTERNATE	12	*********	110	*********	*********	*********
ALTERNATE	13	*********	*********	137	*********	*********

1

TR20 ---------- SCS -
KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS JAN VERSION
01/11/** krugB.T20 250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID		DRAINAGE AREA (SQ MI)	STORM NUMBERS..... 1	2	3	4	5
XSECTION	21	.14					
ALTERNATE	14		*********	*********	*********	236	*********
ALTERNATE	15		*********	*********	*********	*********	297
XSECTION	22	1.19					
ALTERNATE	11		407	*********	*********	*********	*********
ALTERNATE	12		*********	685	*********	*********	*********
ALTERNATE	13		*********	*********	865	*********	*********
ALTERNATE	14		*********	*********	*********	1442	*********
ALTERNATE	15		*********	*********	*********	*********	1771
XSECTION	23	1.33					
ALTERNATE	11		478	*********	*********	*********	*********
ALTERNATE	12		*********	783	*********	*********	*********
ALTERNATE	13		*********	*********	983	*********	*********
ALTERNATE	14		*********	*********	*********	1630	*********
ALTERNATE	15		*********	*********	*********	*********	2009
XSECTION	24	.31					
ALTERNATE	11		240	*********	*********	*********	*********
ALTERNATE	12		*********	343	*********	*********	*********
ALTERNATE	13		*********	*********	415	*********	*********
ALTERNATE	14		*********	*********	*********	666	*********
ALTERNATE	15		*********	*********	*********	*********	820
XSECTION	25	.03					
ALTERNATE	11		30	*********	*********	*********	*********
ALTERNATE	12		*********	46	*********	*********	*********
ALTERNATE	13		*********	*********	57	*********	*********
ALTERNATE	14		*********	*********	*********	96	*********
ALTERNATE	15		*********	*********	*********	*********	120
XSECTION	26	1.65					

```
---------------------------
   ALTERNATE   11              396 ********* ********* ********* *********
   ALTERNATE   12           *********      781 ********* ********* *********
   ALTERNATE   13           ********* *********     1054 ********* *********
   ALTERNATE   14           ********* ********* *********     1996 *********
   ALTERNATE   15           ********* ********* ********* *********     2519

XSECTION   27         1.68
---------------------------
   ALTERNATE   11              399 ********* ********* ********* *********
1
TR20 ------------------------------------------------------------------- SCS -
        KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
01/11/** krugB.T20  250%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST
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                           SUMMARY TABLE 3
                           ---------------
     STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES
     QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/          DRAINAGE
STRUCTURE            AREA       STORM NUMBERS.....
  ID                (SQ MI)         1         2         3         4         5


XSECTION   27         1.68
---------------------------
   ALTERNATE   12           *********      787 ********* ********* *********
   ALTERNATE   13           ********* *********     1063 ********* *********
   ALTERNATE   14           ********* ********* *********     2015 *********
   ALTERNATE   15           ********* ********* ********* *********     2545

XSECTION   28          .09
---------------------------
   ALTERNATE   11              110 ********* ********* ********* *********
   ALTERNATE   12           *********      156 ********* ********* *********
   ALTERNATE   13           ********* *********      187 ********* *********
   ALTERNATE   14           ********* ********* *********      300 *********
   ALTERNATE   15           ********* ********* ********* *********      367

XSECTION   29         1.77
---------------------------
   ALTERNATE   11              424 ********* ********* ********* *********
   ALTERNATE   12           *********      818 ********* ********* *********
   ALTERNATE   13           ********* *********     1110 ********* *********
   ALTERNATE   14           ********* ********* *********     2151 *********
   ALTERNATE   15           ********* ********* ********* *********     2724

XSECTION   30          .00
---------------------------
   ALTERNATE   11                0 ********* ********* ********* *********
   ALTERNATE   12           *********        0 ********* ********* *********
   ALTERNATE   13           ********* *********        0 ********* *********
   ALTERNATE   14           ********* ********* *********        0 *********
   ALTERNATE   15           ********* ********* ********* *********        0

XSECTION   31         1.77
---------------------------
   ALTERNATE   11              420 ********* ********* ********* *********
   ALTERNATE   12           *********      791 ********* ********* *********
   ALTERNATE   13           ********* *********     1030 ********* *********
```

```
   ALTERNATE   14            ********* ********* *********      2053 *********
   ALTERNATE   15            ********* ********* ********* *********      2613
1
 TR20 ---------------------------------------------------------------------- SCS -
          KRUG DEVELOPED/HAWTHORNE/REED'S COVE DEVELOPED CONDITIONS  JAN VERSION
 01/11/** krugB.T20  50%, 20%, 10%, 1%, AND 0.2% ANNUAL CHANCE STORM ZO2.04TEST



 END OF  1 JOBS IN THIS RUN
```

SCS TR-20, VERSION 2.04TEST
FILES

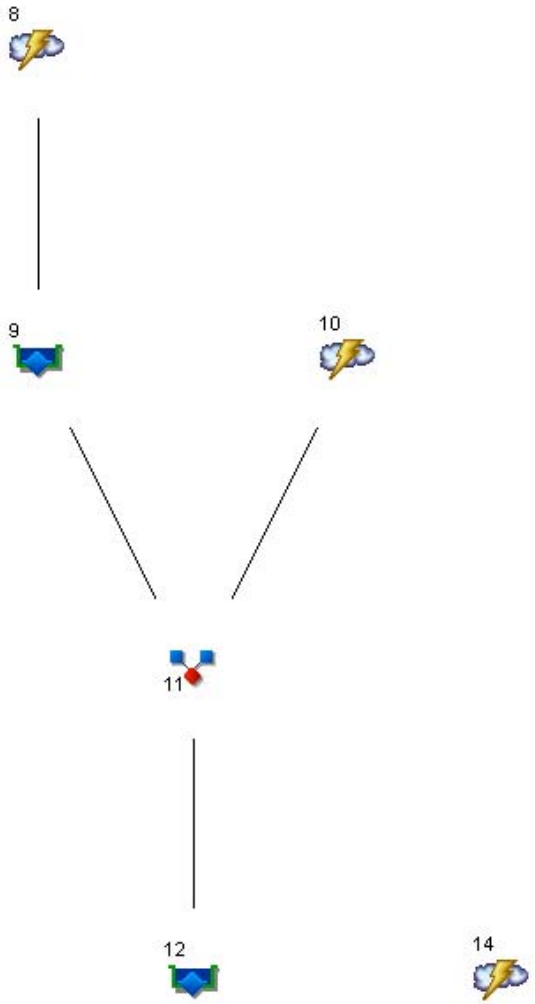
```
    INPUT  = KRUGB.T20                                , GIVEN DATA FILE
    OUTPUT = KRUGB.OUT                                , DATED 01/11/**,16:23:58

             FILES GENERATED - DATED 01/11/**,16:23:58

   FILE KRUGB.TMG CONTAINS MESSAGE + WARNING INFORMATION


          TOTAL NUMBER OF WARNINGS =   7,  MESSAGES =  25

                    *** TR-20 RUN COMPLETED ***
```



Legend

Hyd.	Origin	Description
8	Rational	Post Area to Pond C FINAL
9	Reservoir	Pond C
10	Rational	Post Area to Pond D
11	Combine	Area to Pond D and flow from Pond C
12	Reservoir	POST Basin 2
14	Rational	Pre Basin 2

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
8	Rational	44.53	1	20	1.227	----	------	------	Post Area to Pond C FINAL
9	Reservoir	5.481	1	38	0.053	8	1358.04	1.199	Pond C
10	Rational	53.83	1	26	1.928	----	------	------	Post Area to Pond D
11	Combine	53.83	1	26	1.981	9, 10	------	------	Area to Pond D and flow from Pond C
12	Reservoir	41.23	1	32	1.981	11	1356.46	0.602	POST Basin 2
14	Rational	84.41	1	33	3.837	----	------	------	Pre Basin 2

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
8	Rational	53.08	1	20	1.462	----	------	------	Post Area to Pond C FINAL
9	Reservoir	17.09	1	34	0.289	8	1358.15	1.273	Pond C
10	Rational	64.86	1	26	2.323	----	------	------	Post Area to Pond D
11	Combine	69.91	1	30	2.612	9, 10	------	------	Area to Pond D and flow from Pond C
12	Reservoir	58.52	1	35	2.612	11	1356.85	0.784	POST Basin 2
14	Rational	102.97	1	33	4.680	----	------	------	Pre Basin 2

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
8	Rational	61.17	1	20	1.685	----	------	------	Post Area to Pond C FINAL
9	Reservoir	23.23	1	32	0.512	8	1358.27	1.359	Pond C
10	Rational	75.08	1	26	2.689	----	------	------	Post Area to Pond D
11	Combine	90.52	1	26	3.201	9, 10	------	------	Area to Pond D and flow from Pond C
12	Reservoir	72.79	1	35	3.201	11	1357.14	0.934	POST Basin 2
14	Rational	119.71	1	33	5.441	----	------	------	Pre Basin 2

Table of Contents

100 - Year

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (acft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (acft)	Hydrograph description
8	Rational	86.85	1	20	2.393	----	------	------	Post Area to Pond C FINAL
9	Reservoir	40.51	1	31	1.219	8	1358.71	1.659	Pond C
10	Rational	107.36	1	26	3.845	----	------	------	Post Area to Pond D
11	Combine	143.83	1	26	5.064	9, 10	------	------	Area to Pond D and flow from Pond C
12	Reservoir	115.37	1	34	5.064	11	1357.90	1.369	POST Basin 2
14	Rational	172.46	1	33	7.839	----	------	------	Pre Basin 2

Hydrograph Plot

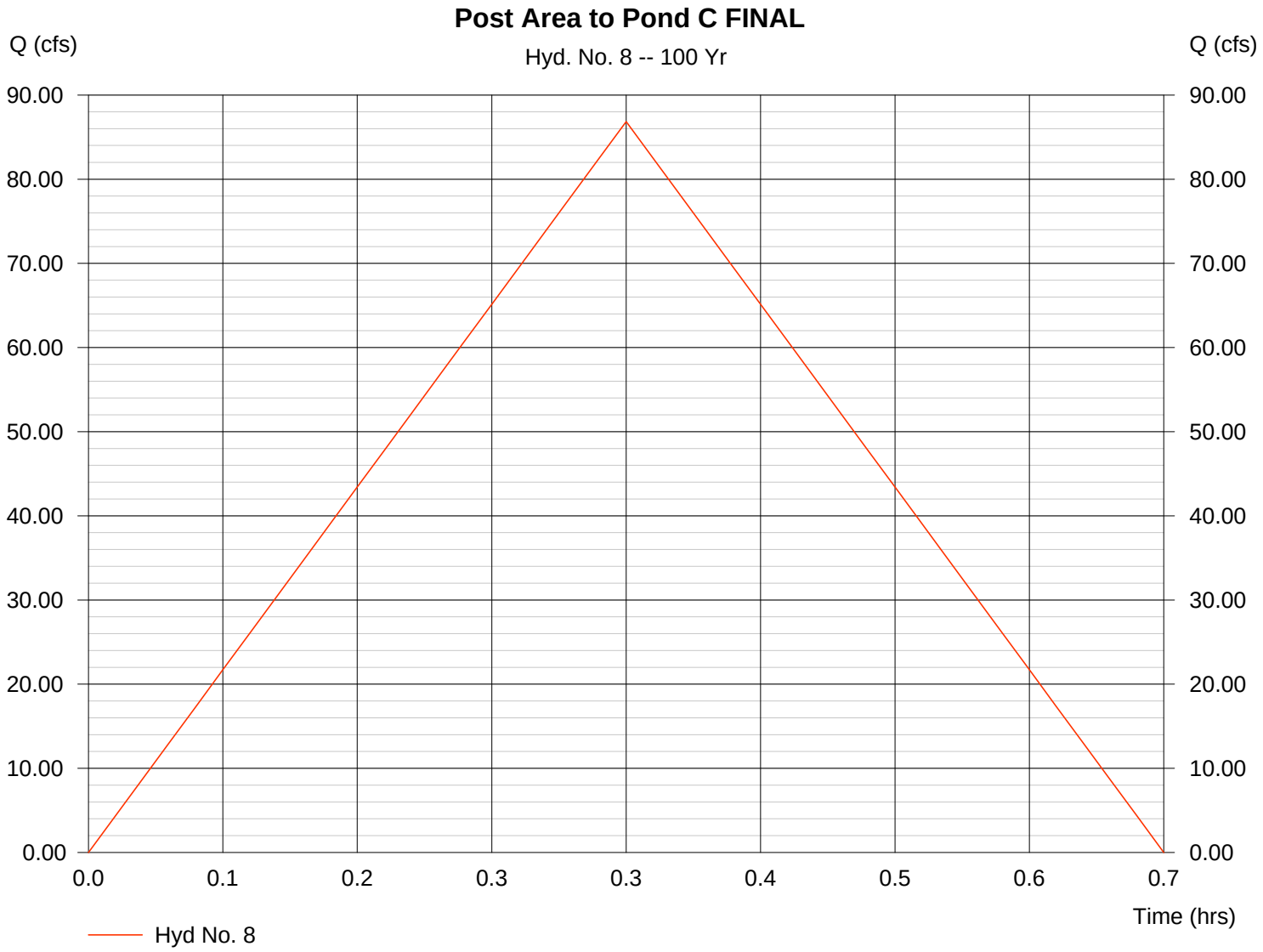
Hydraflow Hydrographs by Intelisolve | Friday, Jan 26 2007, 3:52 PM

Hyd. No. 8

Post Area to Pond C FINAL

Hydrograph type	= Rational	Peak discharge	= 86.85 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 17.500 ac	Runoff coeff.	= 0.76
Intensity	= 6.530 in/hr	Tc by User	= 20.00 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 2.393 acft



Hydrograph Plot

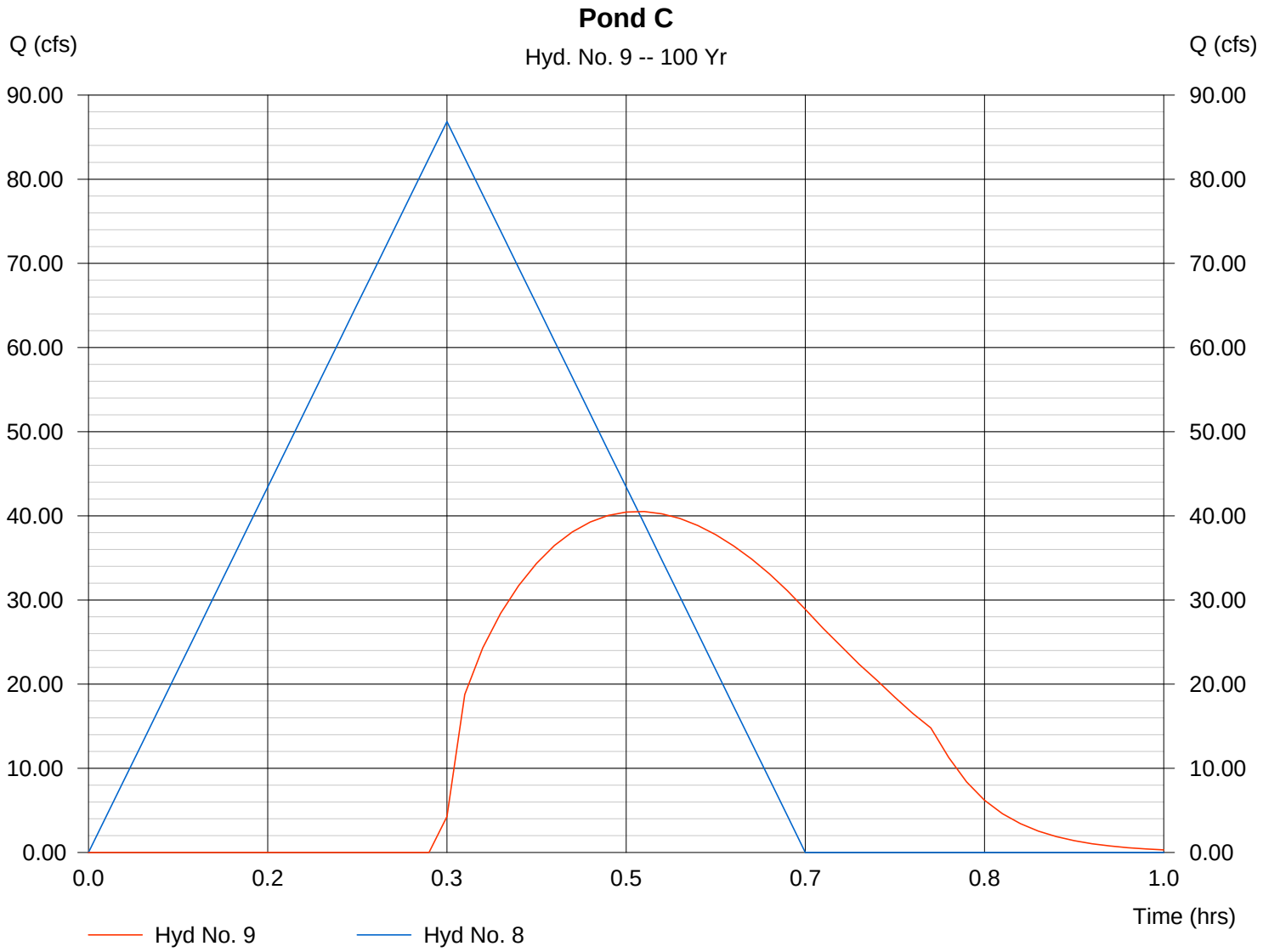
Hydraflow Hydrographs by Intelisolve | Friday, Jan 26 2007, 3:52 PM

Hyd. No. 9

Pond C

Hydrograph type	=	Reservoir	Peak discharge	=	40.51 cfs
Storm frequency	=	100 yrs	Time interval	=	1 min
Inflow hyd. No.	=	8	Max. Elevation	=	1358.71 ft
Reservoir name	=	FINAL Pond C2	Max. Storage	=	1.659 acft

Storage Indication method used. | Hydrograph Volume = 1.219 acft



Pond Report

Hydraflow Hydrographs by Intelisolve — Friday, Jan 26 2007, 3:52 PM

Pond No. 11 - FINAL Pond C2

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1356.00	22,938	0.000	0.000
1.00	1357.00	25,532	0.556	0.556
2.00	1358.00	28,233	0.617	1.173
3.00	1359.00	31,037	0.680	1.854

Culvert / Orifice Structures

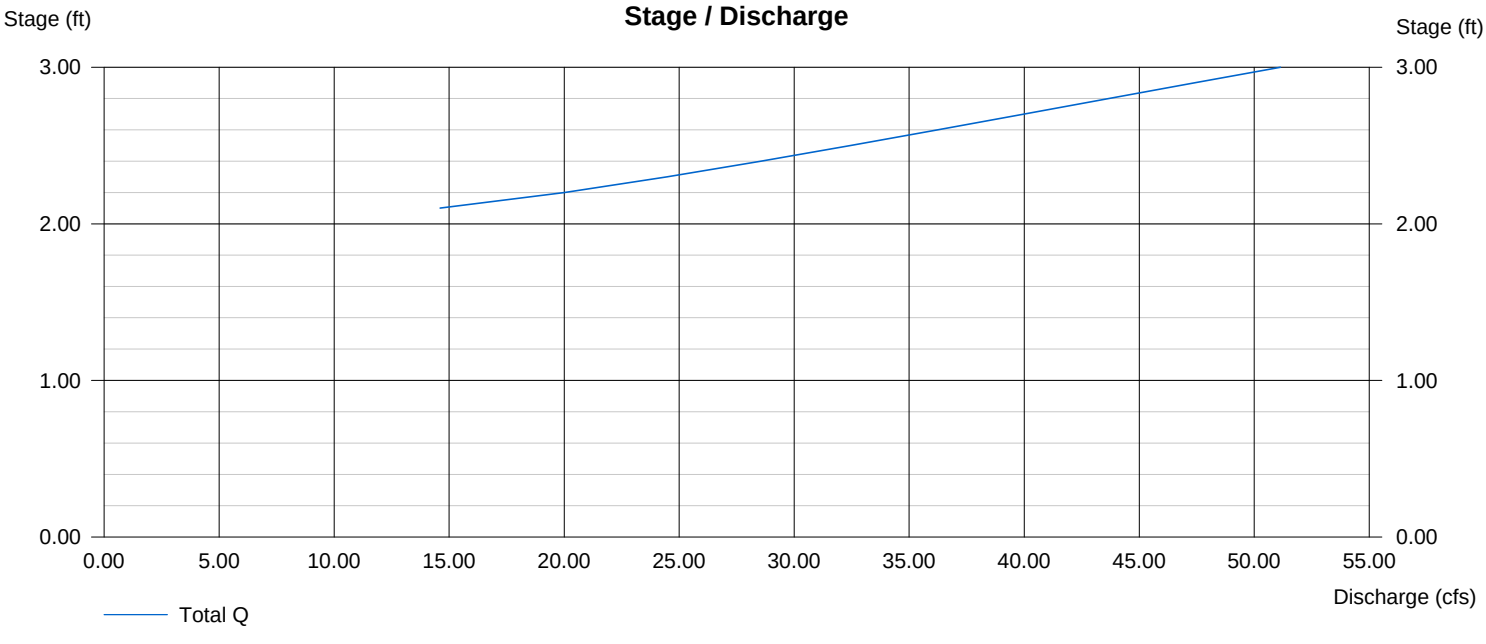
	[A]	[B]	[C]	[D]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	0.00
N-Value	= .000	.000	.000	.000
Orif. Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 4.00	0.00	0.00	0.00
Crest El. (ft)	= 1356.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 1358.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Plot

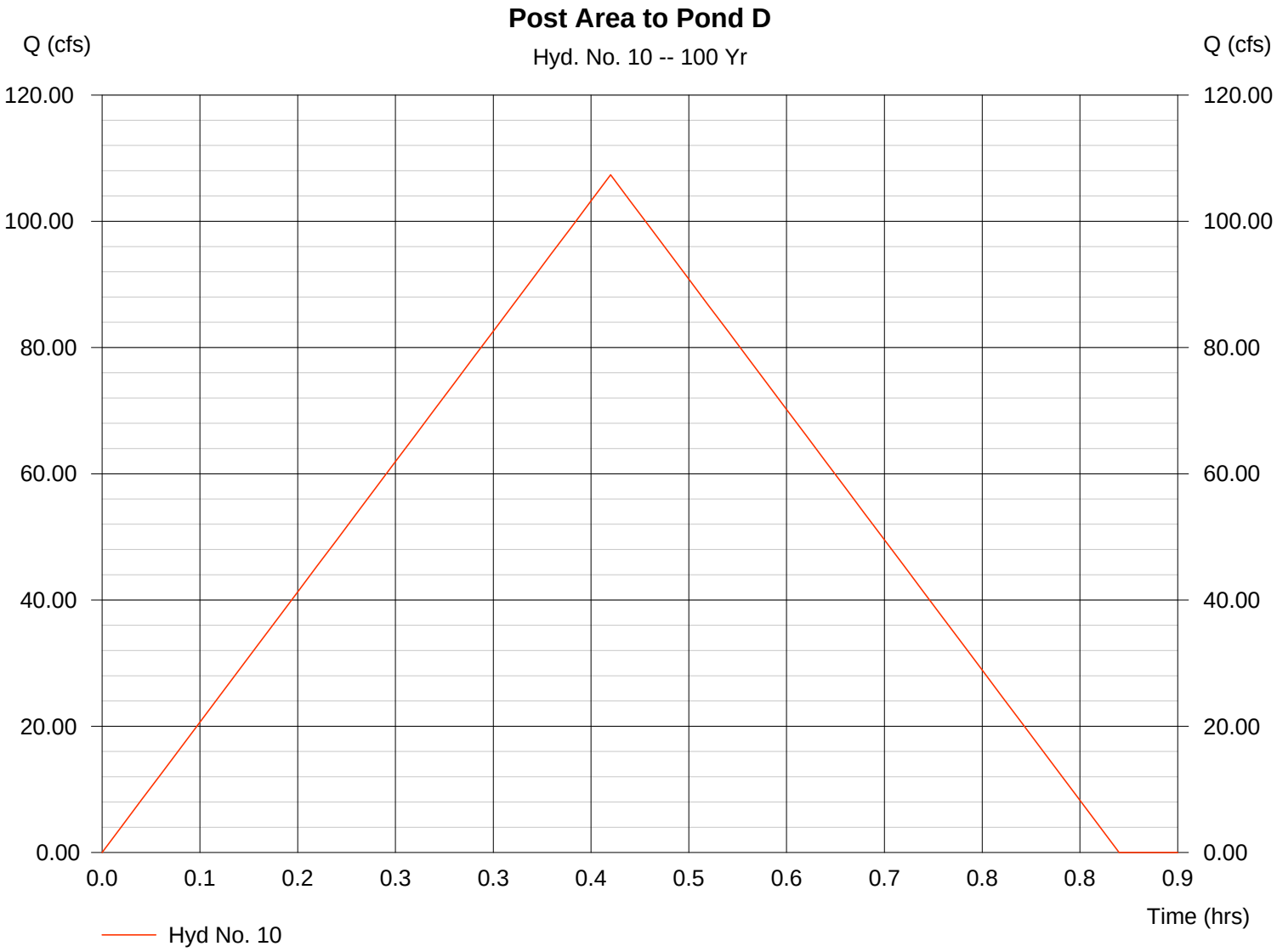
Hydraflow Hydrographs by Intelisolve | Friday, Jan 26 2007, 3:52 PM

Hyd. No. 10

Post Area to Pond D

Hydrograph type	= Rational	Peak discharge	= 107.36 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 24.400 ac	Runoff coeff.	= 0.76
Intensity	= 5.789 in/hr	Tc by User	= 26.00 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 3.845 acft



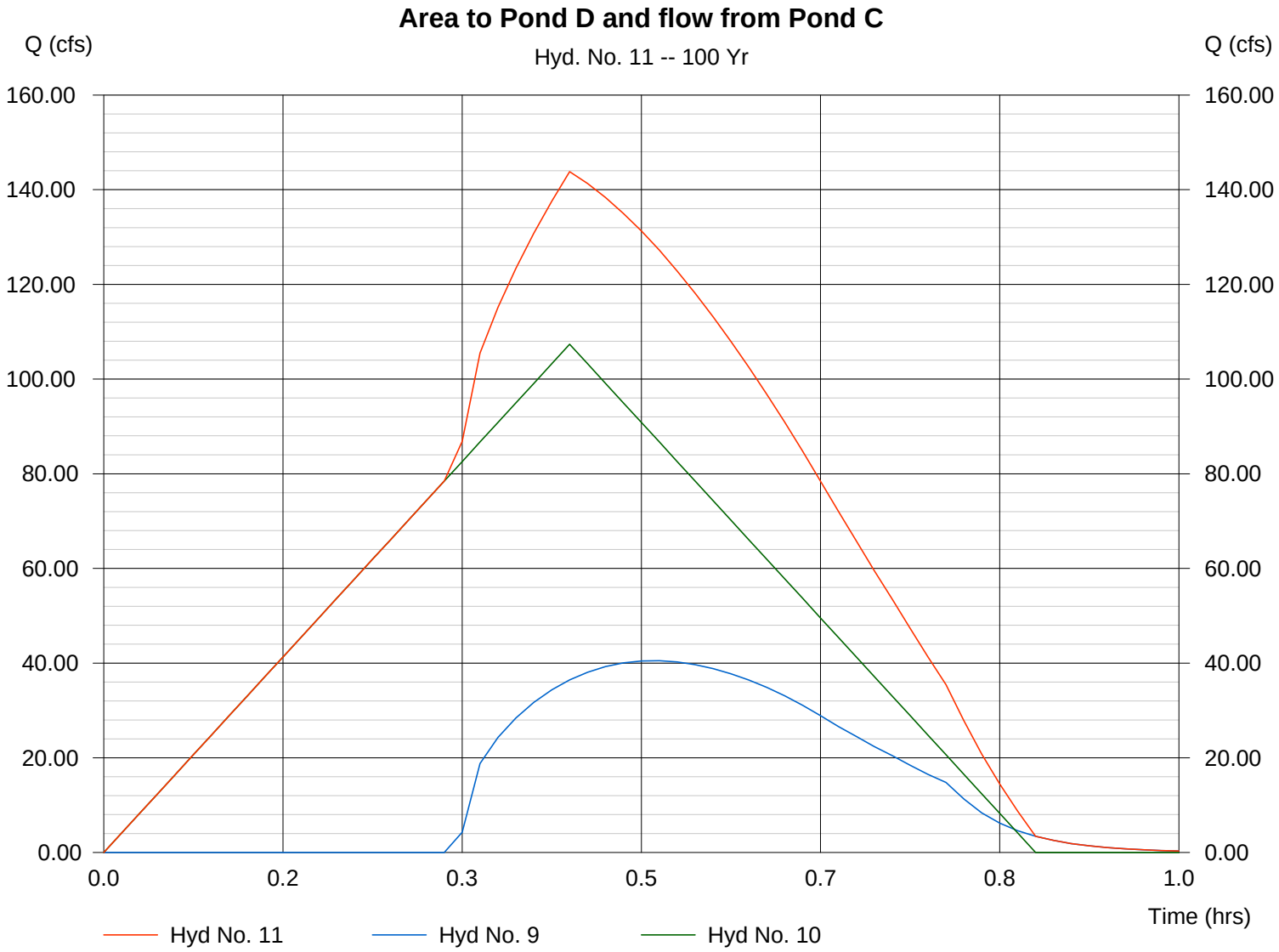
Hydrograph Plot

Hyd. No. 11

Area to Pond D and flow from Pond C

Hydrograph type	=	Combine	Peak discharge	=	143.83 cfs
Storm frequency	=	100 yrs	Time interval	=	1 min
Inflow hyds.	=	9, 10			

Hydrograph Volume = 5.064 acft



Hydrograph Plot

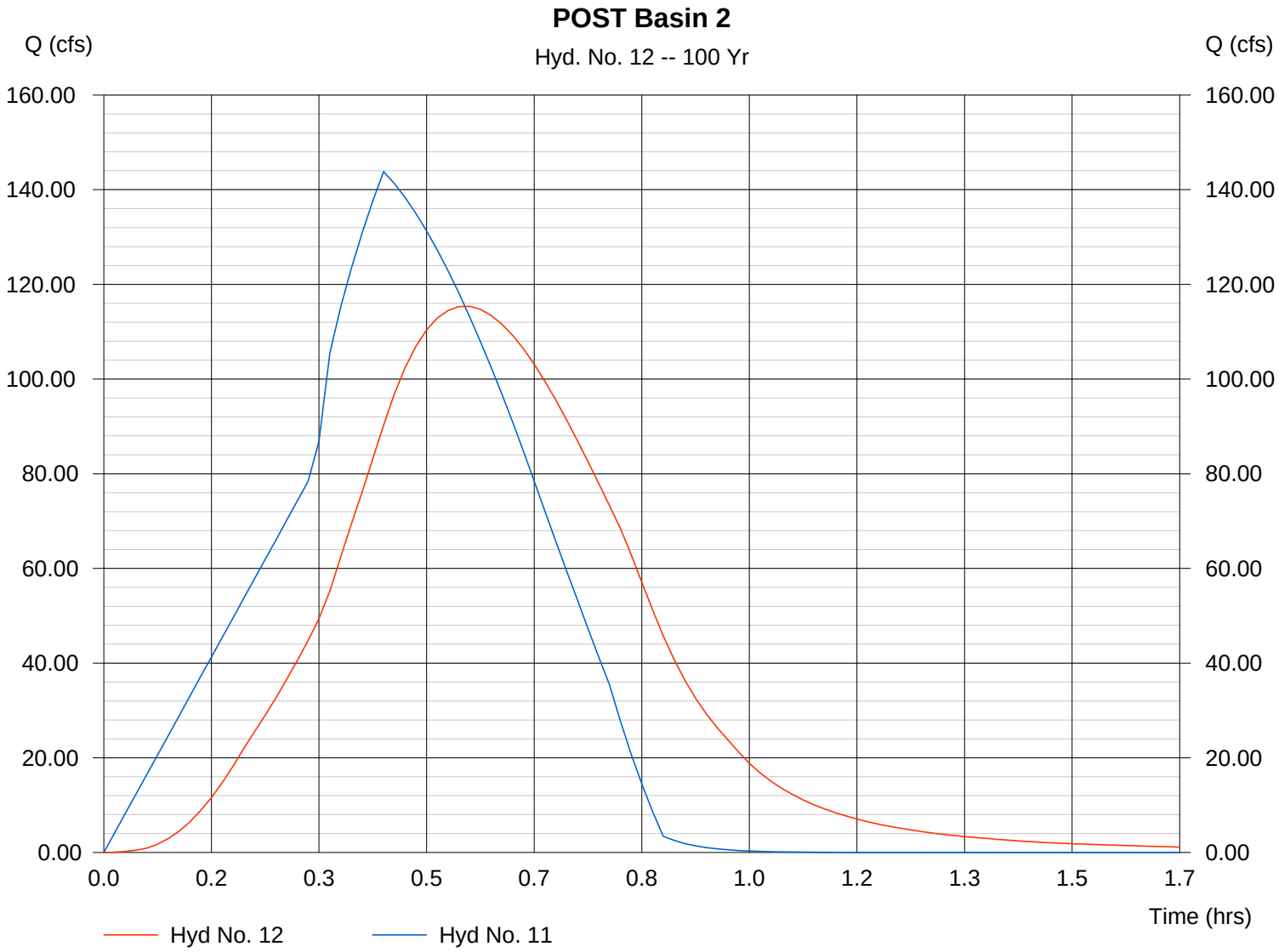
Hydraflow Hydrographs by Intelisolve | Friday, Jan 26 2007, 3:52 PM

Hyd. No. 12

POST Basin 2

Hydrograph type	=	Reservoir	Peak discharge	=	115.37 cfs
Storm frequency	=	100 yrs	Time interval	=	1 min
Inflow hyd. No.	=	11	Max. Elevation	=	1357.90 ft
Reservoir name	=	FINAL Pond D2	Max. Storage	=	1.369 acft

Storage Indication method used. | Hydrograph Volume = 5.064 acft



Pond Report

Pond No. 12 - FINAL Pond D2

Pond Data

Pond storage is based on known contour areas. Average end area method used.

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (acft)	Total storage (acft)
0.00	1355.00	14,751	0.000	0.000
1.00	1356.00	18,623	0.383	0.383
2.00	1357.00	22,616	0.473	0.856
3.00	1358.00	26,731	0.566	1.423

Culvert / Orifice Structures

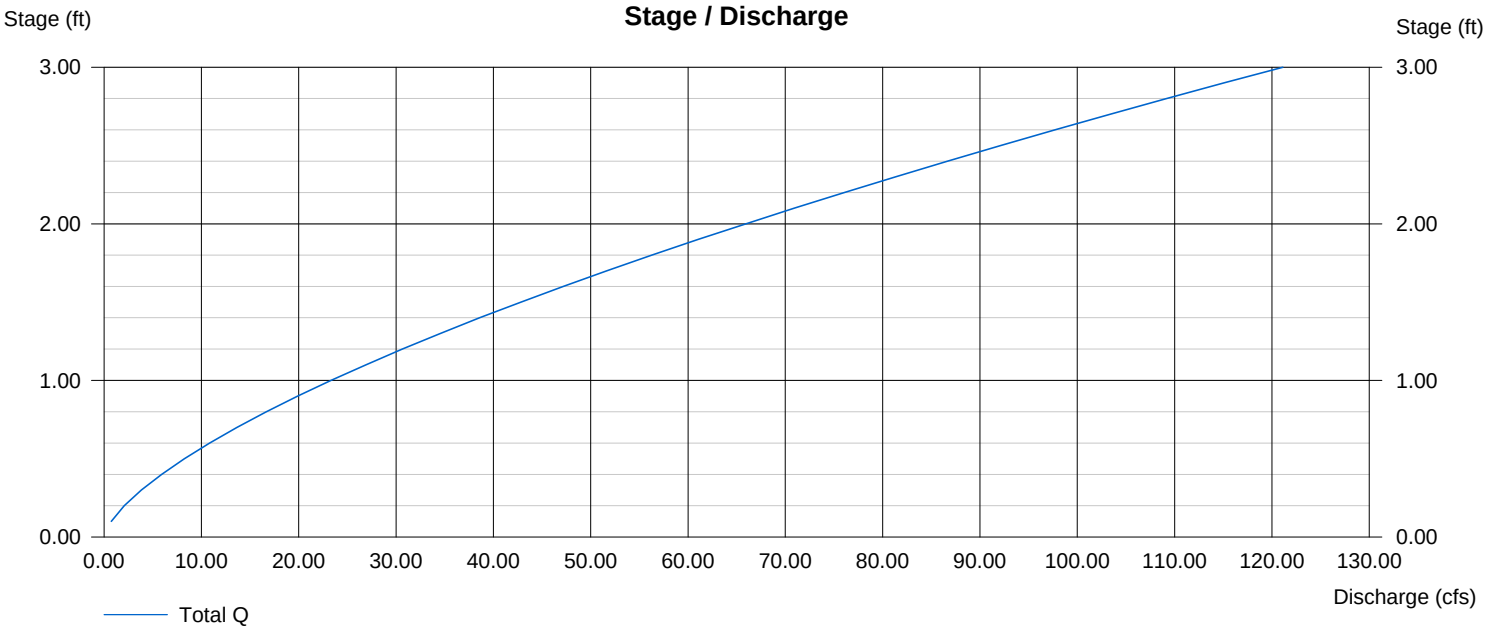
	[A]	[B]	[C]	[D]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	0.00
N-Value	= .000	.000	.000	.000
Orif. Coeff.	= 0.00	0.00	0.00	0.00
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 7.00	0.00	0.00	0.00
Crest El. (ft)	= 1355.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	0.00	0.00	0.00
Weir Type	= Rect	---	---	---
Multi-Stage	= No	No	No	No

Exfiltration = 0.000 in/hr (Contour) Tailwater Elev. = 0.00 ft

Note: Culvert/Orifice outflows have been analyzed under inlet and outlet control.



Hydrograph Plot

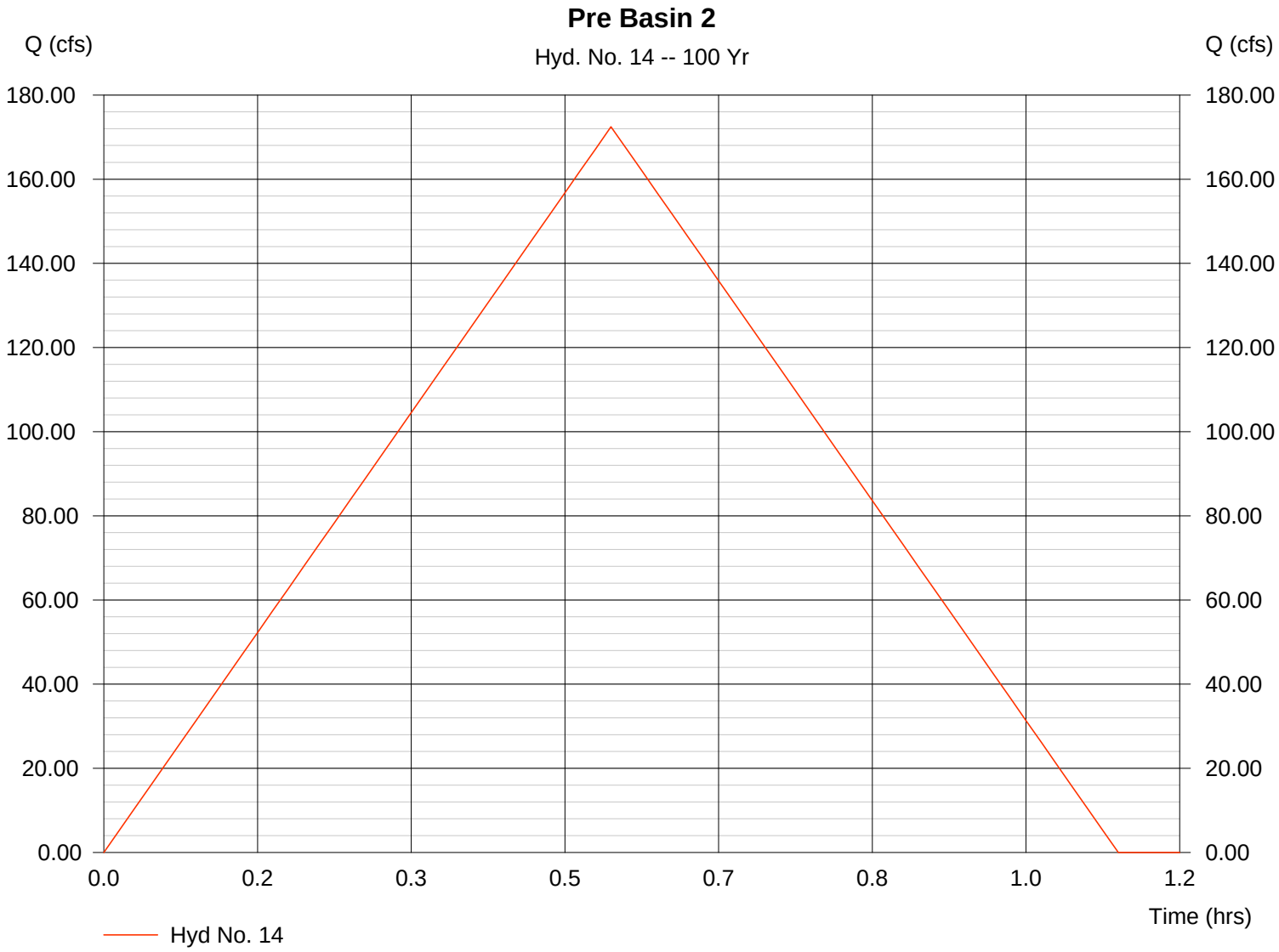
Hydraflow Hydrographs by Intelisolve | Friday, Jan 26 2007, 3:52 PM

Hyd. No. 14

Pre Basin 2

Hydrograph type	= Rational	Peak discharge	= 172.46 cfs
Storm frequency	= 100 yrs	Time interval	= 1 min
Drainage area	= 50.000 ac	Runoff coeff.	= 0.67
Intensity	= 5.148 in/hr	Tc by User	= 33.00 min
IDF Curve	= SedgwickCoKS.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 7.839 acft



Appendix G
Rational Coefficients and Time of Concentration Calculations

TIME OF CONCENTRATION CALCULCATIONS BY THE FAA METHOD

Krug South

Wichita, Kansas

REVISED: 01/11/07

$$T_c = \frac{(1.1\text{-}C)L^{1/2}}{100\ S^{1/3}}$$

Area Name	Land Use	Soil Group	Maximum Elevation	Minimum Elevation	Length	Rational Runoff Coefficient, C				Time of Concentration (min.), Tc			
					(ft)	2-Year	5-Year	10-Year	100-Year	2-Year	5-Year	10-Year	100-Year
BASIN 1													
Pre-Project* (TR-20 Runoff 024)	Residential - 1/2 Acre	D	1,390	1,340	7,000	0.42	0.48	0.56	0.72	114.6	104.5	91.0	64.0
Post-Project													
Offsite watershed (TR-20 Runoff 024)	Residential - 1/4 Acre	D	1390.0	1360.0	4000	0.50	0.54	0.62	0.76	75.2	70.2	60.1	42.6
Onsite (TR-20 Runoff 028)	Residential - 1/4 Acre	D	1,361	1,352	610	0.50	0.54	0.62	0.76	23.4	21.9	18.7	15.0
BASIN 2													
Pre-Project													
Onsite	Agricultural - Pasture - Slopes 1-4%	D	1,380	1,350	2,200	0.32	0.37	0.47	0.67	59.4	55.6	48.0	32.7
Post-Project													
Watershed 3 - to Pond C	Residential - 1/4 Acre	D	1,376	1,361	1,186	0.50	0.54	0.62	0.76	34.4	32.1	27.5	19.5
Watershed 4 - to Pond D	Residential - 1/4 Acre	D	1,366	1,360	1,134	0.50	0.54	0.62	0.76	45.0	42.0	36.0	25.5

*25% impervious designation was used for Land Use since weighted curve number is 85.4 - Krug S. is undeveloped 66 ac. CN=81 and offsite watershed is developed, 191 ac. CN=87

Appendix H
Grading Plan

PLAT LOCATION

VICINITY MAP

BENCH MARKS

BM 1 ⊕ RAILROAD SPIKE IN SOUTH FACE OF POWER POLE 3RD. POWER POLE WEST OF 143RD. STREET SOUTH SIDE OF 21ST. STREET.
Elev. = 1362.18 (NGVD 29)
174.78 (City Datum)

BM 2 ⊕ RAILROAD SPIKE IN SOUTH FACE OF POWER POLE FIRST POWERPOLE WEST OF 143RD. STREET SOUTH SIDE OF 21ST. STREET
Elev.= 1370.29(NGVD 29)
182.89 (City Datum)

LEGEND

- CN - CONIFEROUS TREE
- DN - DECIDUOUS TREE
- SN - SIGN
- PP - POWER POLE
- EB - ELECTRIC BOX
- LP - LIGHT POLE
- FH - FIRE HYDRANT
- WV - WATER VALVE
- WM - WATER METER
- SC - SECTION CORNER
- BM - BENCHMARK
- EASEMENT
- BUILDING SETBACK
- FENCE
- STORM SEWER PIPE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE
- GAS PIPELINE
- TELEPHONE LINE
- UGE - UNDERGROUND ELEC.
- OHE - OVERHEAD ELECTRIC
- FOC - FIBER OPTIC CABLE

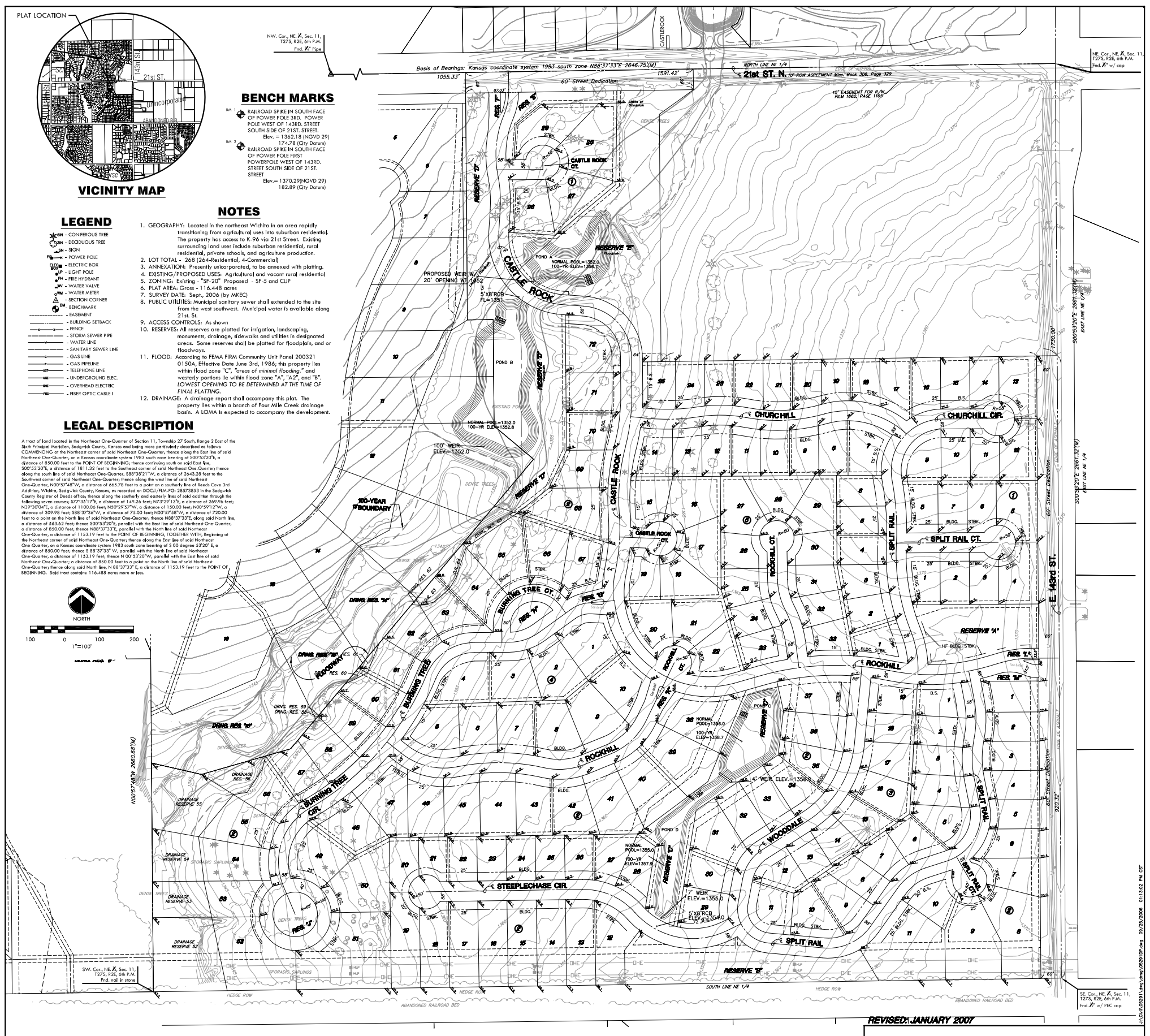
NOTES

1. GEOGRAPHY: Located in the northeast Wichita in an area rapidly transitioning from agricultural uses into suburban residential. The property has access to K-96 via 21st Street. Existing surrounding land uses include suburban residential, rural residential, private schools, and agriculture production.
2. LOT TOTAL - 268 (264-Residential, 4-Commercial)
3. ANNEXATION: Presently unincorporated, to be annexed with platting.
4. EXISTING/PROPOSED USES: Agricultural and vacant rural residential
5. ZONING: Existing - "SF-20" Proposed - SF-5 and CUP
6. PLAT AREA: Gross - 116.448 acres
7. SURVEY DATE: Sept., 2006 (by MKEC)
8. PUBLIC UTILITIES: Municipal sanitary sewer shall extended to the site from the west southwest. Municipal water is available along 21st. St.
9. ACCESS CONTROLS: As shown
10. RESERVES: All reserves are platted for irrigation, landscaping, monuments, drainage, side-walks and utilities in designated areas. Some reserves shall be platted for floodplain, and or floodways.
11. FLOOD: According to FEMA FIRM Community Unit Panel 200321 0150A, Effective Date June 3rd, 1986; this property lies within flood zone "C", "areas of minimal flooding," and westerly portions lie within flood zone "A", "A2", and "B". *LOWEST OPENING TO BE DETERMINED AT THE TIME OF FINAL PLATTING.*
12. DRAINAGE: A drainage report shall accompany this plat. The property lies within a branch of Four Mile Creek drainage basin. A LOMA is expected to accompany the development.

LEGAL DESCRIPTION

A tract of land located in the Northeast One-Quarter of Section 11, Township 27 South, Range 2 East of the Sixth Principal Meridian, Sedgwick County, Kansas and being more particularly described as follows: COMMENCING at the Northeast corner of said Northeast One-Quarter; thence along the East line of said Northeast One-Quarter, on a Kansas coordinate system 1983 south zone bearing of S00°53'20"E, a distance of 850.00 feet to the POINT OF BEGINNING; thence continuing south on said East line, S00°53'20"E, a distance of 1811.32 feet to the Southeast corner of said Northeast One-Quarter; thence along the south line of said Northeast One-Quarter, S88°38'21"W, a distance of 2643.28 feet to the Southwest corner of said Northeast One-Quarter; thence along the west line of said Northeast One-Quarter, N00°57'48"W, a distance of 665.78 feet to a point on a southerly line of Reeds Cove 3rd Addition, Wichita, Sedgwick County, Kansas, as recorded on DOCK/PLAN-No. 2857/3833 in the Sedgwick County Register of Deeds office; thence along the southerly and easterly lines of said addition through the following seven courses; S77°35'17"E, a distance of 149.26 feet; N73°29'13"E, a distance of 269.96 feet; N39°30'04"E, a distance of 1100.06 feet; N50°29'57"W, a distance of 150.00 feet; N00°59'12"W, a distance of 309.98 feet; S88°37'36"W, a distance of 75.00 feet; N00°57'58"W, a distance of 720.00 feet to a point on the North line of said Northeast One-Quarter; thence N88°37'33"E, along said North line, a distance of 563.62 feet; thence S00°53'20"E, parallel with the East line of said Northeast One-Quarter, a distance of 850.00 feet; thence N88°37'33"E, parallel with the North line of said Northeast One-Quarter, a distance of 1153.19 feet to the POINT OF BEGINNING, TOGETHER WITH, Beginning at the Northeast corner of said Northeast One-Quarter; thence along the East line of said Northeast One-Quarter, on a Kansas coordinate system 1983 south zone bearing of S 00 degree 53'20" E, a distance of 850.00 feet; thence S 88°37'33" W, parallel with the North line of said Northeast One-Quarter, a distance of 1153.19 feet; thence N 00°53'20"W, parallel with the East line of said Northeast One-Quarter, a distance of 850.00 feet to a point on the North line of said Northeast One-Quarter; thence along said North line, N 88°37'33" E, a distance of 1153.19 feet to the POINT OF BEGINNING. Said tract contains 116.488 acres more or less.

NORTH
100 0 100 200
1"=100'



REVISED: JANUARY 2007

MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-8600

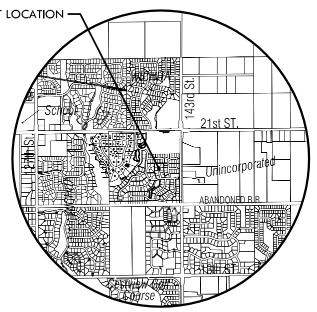
KRUG SOUTH ADDITION
PROJECT NAME

GRADING PLAN
SHEET TITLE

TMH	KWS/CMJ	KLA
DESIGN BY:	DRAWN BY:	CHECKED BY:
NOVEMBER 2006	05291	1 / 1
DATE	JOB NO.	SHEET/OF

J:\Civil\05291\dwg\dwg\05291SP.dwg 09/25/2006 01:13:02 PM CST

Appendix I
Utility Plan



VICINITY MAP

BENCH MARKS

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Elev. = 1362.18 (NGVD 29)
174.78 (City Datum)

BM 2 RAILROAD SPIKE IN SOUTH FACE OF POWER POLE FIRST POWERPOLE WEST OF 143RD. STREET SOUTH SIDE OF 21ST. STREET
Elev.= 1370.29(NGVD 29)
182.89 (City Datum)

LEGEND

- 6IN - CONIFEROUS TREE
- 3IN - DECIDUOUS TREE
- SN - SIGN
- PP - POWER POLE
- ELEC BOX - ELECTRIC BOX
- LP - LIGHT POLE
- FH - FIRE HYDRANT
- WV - WATER VALVE
- WM - WATER METER
- SECTION CORNER
- BM - BENCHMARK
- EASEMENT
- BUILDING SETBACK
- FENCE
- STORM SEWER PIPE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE
- GAS PIPELINE
- UGT - TELEPHONE LINE
- UGE - UNDERGROUND ELEC.
- OHE - OVERHEAD ELECTRIC
- FOC - FIBER OPTIC CABLE !
- A17 - AREA FOR SWS SIZING

NOTES

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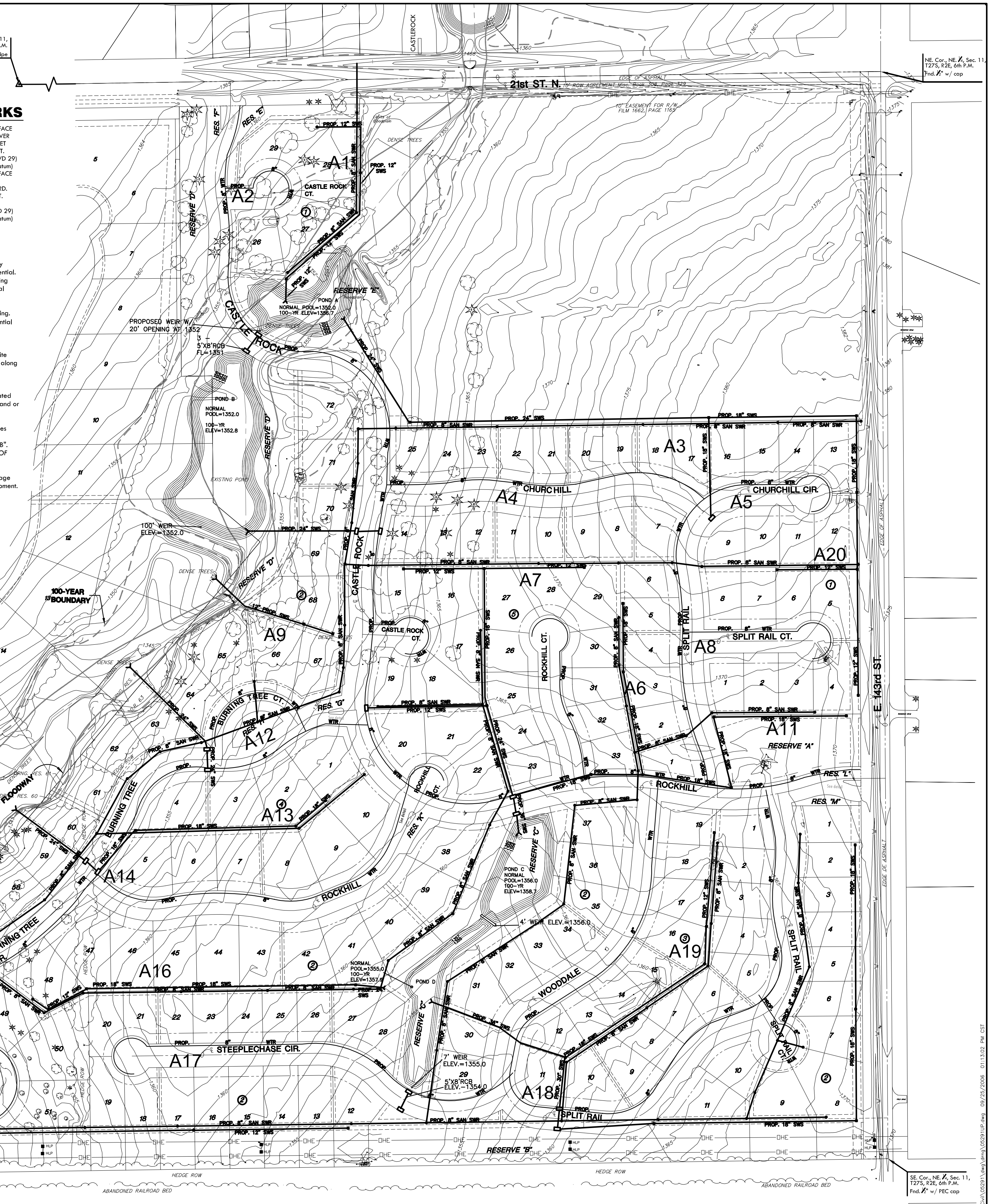
NORTH

100 0 100 200

1"=100'



REVISED: JANUARY 2007

MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

KRUG SOUTH ADDITION		
PROJECT NAME		
PRELIMINARY UTILITY PLAN		
SHEET TITLE		
TMH	KWS	KLA
DESIGN BY:	DRAWN BY:	CHECKED BY:
SEPTEMBER 2006	05291	1 / 1
DATE	JOB NO.	SHEET/OF

Appendix J
Stormwater Sewer Pipe Sizing Calculations

PIPE SIZING - TIME OF CONCENTRATION CALCULCATIONS BY THE FAA METHOD

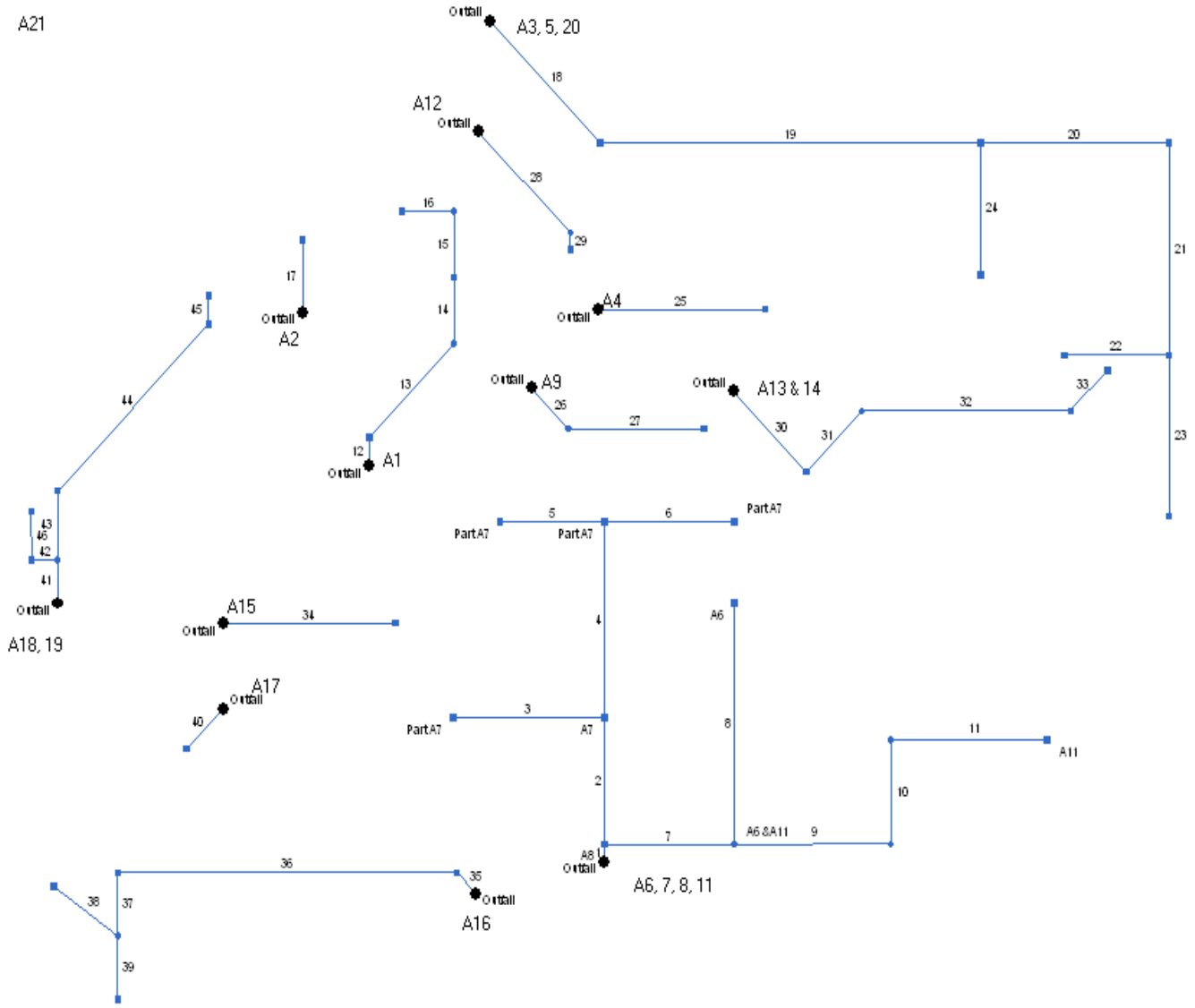
Krug South

Wichita, Kansas

$$T_c = \frac{(1.1-C)L^{1/2}}{100\ S^{1/3}}$$

Area Name	Land Use	Soil Group	Maximum Elevation	Minimum Elevation	Flow Length (L)	Rational Runoff Coefficient, C				Time of Concentration (min), T_c			
						2-Year	5-Year	10-Year	100-Year	2-Year	5-Year	10-Year	100-Year
A1	Residential - 1/4 Acre	D	1,360	1,358	150	0.50	0.54	0.62	0.76	15.0	15.0	15.0	15.0
A2	Residential - 1/4 Acre	D	1,361	1,352	610	0.50	0.54	0.62	0.76	23.4	21.9	18.7	15.0
A3	Residential - 1/4 Acre	D				0.50	0.54	0.62	0.76	15.0	15.0	15.0	15.0
A4	Residential - 1/4 Acre	D	1,372	1,360	550	0.50	0.54	0.62	0.76	19.5	18.2	15.6	15.0
A5	Residential - 1/4 Acre	D	1,377	1,375	370	0.50	0.54	0.62	0.76	25.5	23.8	20.4	15.0
A6	Residential - 1/4 Acre	D				0.50	0.54	0.62	0.76	15.0	15.0	15.0	15.0
A7	Residential - 1/4 Acre	D				0.50	0.54	0.62	0.76	15.0	15.0	15.0	15.0
A8	Residential - 1/4 Acre	D	1,376	1,361	1,186	0.50	0.54	0.62	0.76	34.4	32.1	27.5	19.5
A9	Residential - 1/4 Acre	D				0.50	0.54	0.62	0.76	15.0	15.0	15.0	15.0
A11	Residential - 1/4 Acre	D				0.50	0.54	0.62	0.76	15.0	15.0	15.0	15.0
A12	Residential - 1/4 Acre	D	1,361	1,353	484	0.50	0.54	0.62	0.76	20.1	18.8	16.1	15.0
A13	Residential - 1/4 Acre	D				0.50	0.54	0.62	0.76	15.0	15.0	15.0	15.0
A14	Residential - 1/4 Acre	D	1,362	1,353	369	0.50	0.54	0.62	0.76	15.4	15.0	15.0	15.0
A15	Residential - 1/4 Acre	D	1,350	1,349	461	0.50	0.54	0.62	0.76	38.6	36.0	30.9	21.9
A16	Residential - 1/4 Acre	D				0.50	0.54	0.62	0.76	15.0	15.0	15.0	15.0
A17	Residential - 1/4 Acre	D	1,359	1,354	786	0.50	0.54	0.62	0.76	35.2	32.9	28.2	19.9
A18	Residential - 1/4 Acre	D	1,366	1,360	1,134	0.50	0.54	0.62	0.76	45.0	42.0	36.0	25.5
A19	Residential - 1/4 Acre	D				0.50	0.54	0.62	0.76	15.0	15.0	15.0	15.0
A20	Residential - 1/4 Acre	D				0.50	0.54	0.62	0.76	15.0	15.0	15.0	15.0

Hydraflow Plan View



KrugS_residential_SWS	No. Lines: 46	01-26-2007

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	30.0	-90.0	Curb	0.00	10.95	0.50	34.0	1358.00	0.13	1358.04	36	Cir	0.013	1.50	0.00	A6, 7, 8, 11
2	1	220.0	0.0	Genr	0.00	1.00	0.50	15.0	1358.04	0.21	1358.50	24	Cir	0.013	1.50	1360.74	
3	2	290.0	-90.0	Curb	0.00	1.00	0.50	15.0	1358.74	0.55	1360.34	12	Cir	0.013	1.00	1361.84	
4	2	340.0	0.0	Genr	0.00	1.00	0.50	15.0	1358.74	0.32	1359.83	18	Cir	0.013	2.25	0.00	
5	4	200.0	-90.0	Genr	0.00	1.00	0.50	15.0	1359.83	0.55	1360.93	12	Cir	0.013	1.00	0.00	
6	4	250.0	90.0	Genr	0.00	1.00	0.50	15.0	1359.83	0.55	1361.21	12	Cir	0.013	1.00	0.00	
7	1	250.0	90.0	MH	0.00	0.00	0.00	0.0	1358.04	0.32	1358.84	18	Cir	0.013	1.00	0.00	
8	7	420.0	-90.0	Genr	0.00	1.48	0.50	15.0	1358.84	0.32	1360.18	18	Cir	0.013	1.00	0.00	
9	7	300.0	-0.1	MH	0.00	0.00	0.00	0.0	1358.84	0.32	1359.80	18	Cir	0.013	1.00	0.00	
10	9	180.0	-90.0	MH	0.00	0.00	0.00	0.0	1360.49	0.32	1361.07	18	Cir	0.013	1.00	0.00	
11	10	300.0	90.0	Genr	0.00	1.69	0.50	15.0	1361.48	0.32	1362.44	18	Cir	0.013	1.00	0.00	
12	End	50.0	-90.0	Genr	0.00	0.41	0.50	15.0	1356.90	0.56	1357.18	12	Cir	0.013	1.13	0.00	A1
13	12	230.0	45.0	MH	0.00	0.00	0.00	0.0	1357.18	0.55	1358.45	12	Cir	0.013	0.75	0.00	
14	13	115.0	-45.0	Genr	0.00	0.41	0.50	15.0	1358.45	0.55	1359.08	12	Cir	0.013	0.50	0.00	
15	14	115.0	0.0	MH	0.00	0.00	0.00	0.0	1359.08	0.55	1359.71	12	Cir	0.013	1.00	0.00	
16	15	100.0	-90.0	Genr	0.00	0.41	0.50	15.0	1359.71	0.55	1360.26	12	Cir	0.013	1.00	0.00	
17	End	125.0	-90.0	Curb	0.00	2.76	0.50	23.0	1356.90	0.32	1357.30	18	Cir	0.013	1.00	0.00	A2
18	End	300.0	45.0	Genr	0.00	0.66	0.50	15.0	1356.90	0.21	1357.53	24	Cir	0.013	1.13	0.00	A3, 5, 20
19	18	730.0	-45.0	Genr	0.00	0.66	0.50	15.0	1357.86	0.21	1359.39	24	Cir	0.013	1.50	0.00	
20	19	360.0	0.0	Genr	0.00	0.66	0.50	15.0	1360.20	0.32	1361.35	18	Cir	0.013	1.50	0.00	
21	20	370.0	90.0	Genr	0.00	0.56	0.50	15.0	1361.64	0.32	1362.82	18	Cir	0.013	1.50	0.00	

KrugS_residential_SWS | Number of lines: 46 | Date: 01-26-2007

Storm Sewer Inventory Report

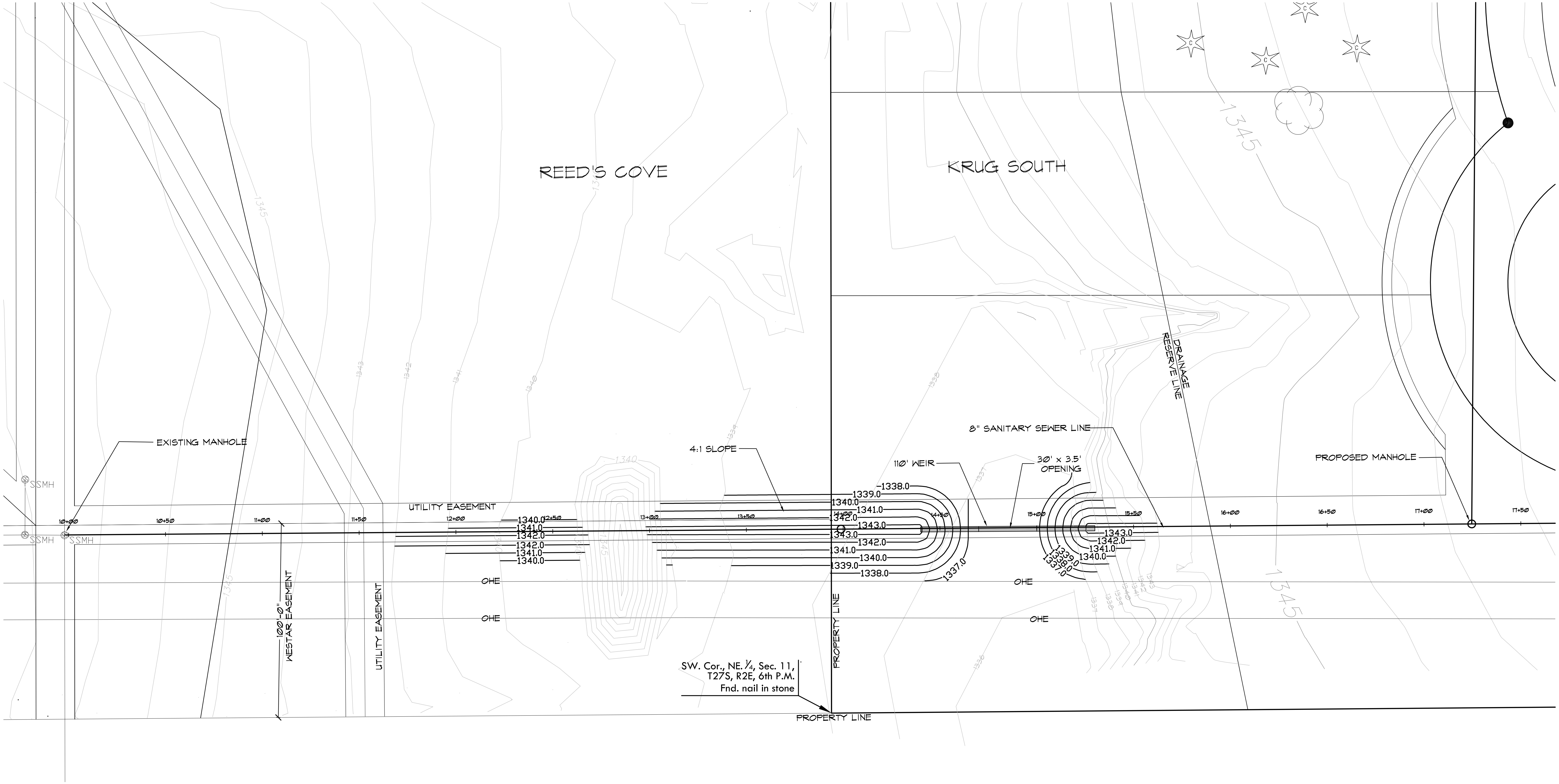
Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
22	21	200.0	90.0	Genr	0.00	0.56	0.50	15.0	1363.68	0.55	1364.78	12	Cir	0.013	1.00	0.00	
23	21	280.0	0.0	Genr	0.00	0.56	0.50	15.0	1363.68	0.55	1365.22	12	Cir	0.013	1.00	0.00	
24	19	230.0	90.0	Curb	0.00	2.64	0.50	26.0	1361.64	0.32	1362.38	18	Cir	0.013	1.00	0.00	
25	End	320.0	0.0	Curb	0.00	4.80	0.50	20.0	1356.20	0.21	1356.87	24	Cir	0.013	1.00	0.00	A4
26	End	100.0	45.0	MH	0.00	0.00	0.00	0.0	1353.30	0.55	1353.85	12	Cir	0.013	0.75	0.00	A9
27	26	260.0	-45.0	Genr	0.00	0.51	0.50	15.0	1353.85	0.55	1355.28	12	Cir	0.013	1.00	0.00	
28	End	250.0	45.0	MH	0.00	0.00	0.00	0.0	1347.70	0.21	1348.23	24	Cir	0.013	0.75	0.00	A12
29	28	30.0	45.0	Curb	0.00	4.20	0.50	20.0	1348.50	0.20	1348.56	24	Cir	0.013	1.00	0.00	
30	End	200.0	45.0	Curb	0.00	3.08	0.50	15.0	1345.00	0.21	1345.42	24	Cir	0.013	1.50	0.00	A13, 14
31	30	150.0	-90.0	MH	0.00	0.00	0.00	0.0	1345.64	0.32	1346.12	18	Cir	0.013	0.75	0.00	
32	31	400.0	45.0	Genr	0.00	0.96	0.50	15.0	1346.47	0.32	1347.75	18	Cir	0.013	1.13	0.00	
33	32	100.0	-45.0	Genr	0.00	0.96	0.50	15.0	1348.67	0.32	1348.99	18	Cir	0.013	1.00	0.00	
34	End	330.0	0.0	Curb	0.00	4.12	0.50	39.0	1344.00	0.32	1345.06	18	Cir	0.013	1.00	0.00	A15
35	End	50.0	-135.0	Genr	0.00	1.00	0.50	15.0	1358.00	0.22	1358.11	24	Cir	0.013	1.13	0.00	A16
36	35	650.0	-45.0	Genr	0.00	1.00	0.50	15.0	1358.16	0.32	1360.24	18	Cir	0.013	1.50	0.00	
37	36	110.0	-90.0	MH	0.00	0.00	0.00	0.0	1360.24	0.32	1360.59	18	Cir	0.013	1.00	0.00	
38	37	150.0	125.0	Genr	0.00	1.00	0.50	15.0	1360.68	0.55	1361.51	12	Cir	0.013	1.00	0.00	
39	37	110.0	0.0	Genr	0.00	1.00	0.50	15.0	1360.68	0.55	1361.29	12	Cir	0.013	1.00	0.00	
40	End	100.0	135.0	Curb	0.00	3.77	0.50	35.0	1358.00	0.32	1358.32	18	Cir	0.013	1.00	0.00	A17
41	End	75.0	-90.0	MH	0.00	0.00	0.00	0.0	1357.00	0.16	1357.12	36	Cir	0.013	1.00	0.00	A18, 19
42	41	50.0	-90.0	Curb	0.00	12.90	0.50	45.0	1357.16	0.16	1357.24	30	Cir	0.013	1.50	0.00	A18

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line type	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
43	41	120.0	0.0	Genr	0.00	0.90	0.50	15.0	1357.16	0.32	1357.54	18	Cir	0.013	1.13	0.00	
44	43	410.0	45.0	Genr	0.00	0.90	0.50	15.0	1357.64	0.32	1358.95	18	Cir	0.013	1.13	0.00	
45	44	50.0	-45.0	Genr	0.00	0.90	0.50	15.0	1359.90	0.56	1360.18	12	Cir	0.013	1.00	0.00	
46	42	84.1	89.9	Grate	0.00	1.60	0.50	15.0	1557.12	0.32	1557.39	18	Cir	0.013	1.00	0.00	Backyd 143

KrugS_residential_SWS | Number of lines: 46 | Date: 01-26-2007

Appendix K
Weir Plan



Sanitary Sewer / Weir Wall -Plan View

KRUG SOUTH

January 23, 2007

NORTH
Scale: 1"=30'

MKEC
ENGINEERING
CONSULTANTS, INC.

411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

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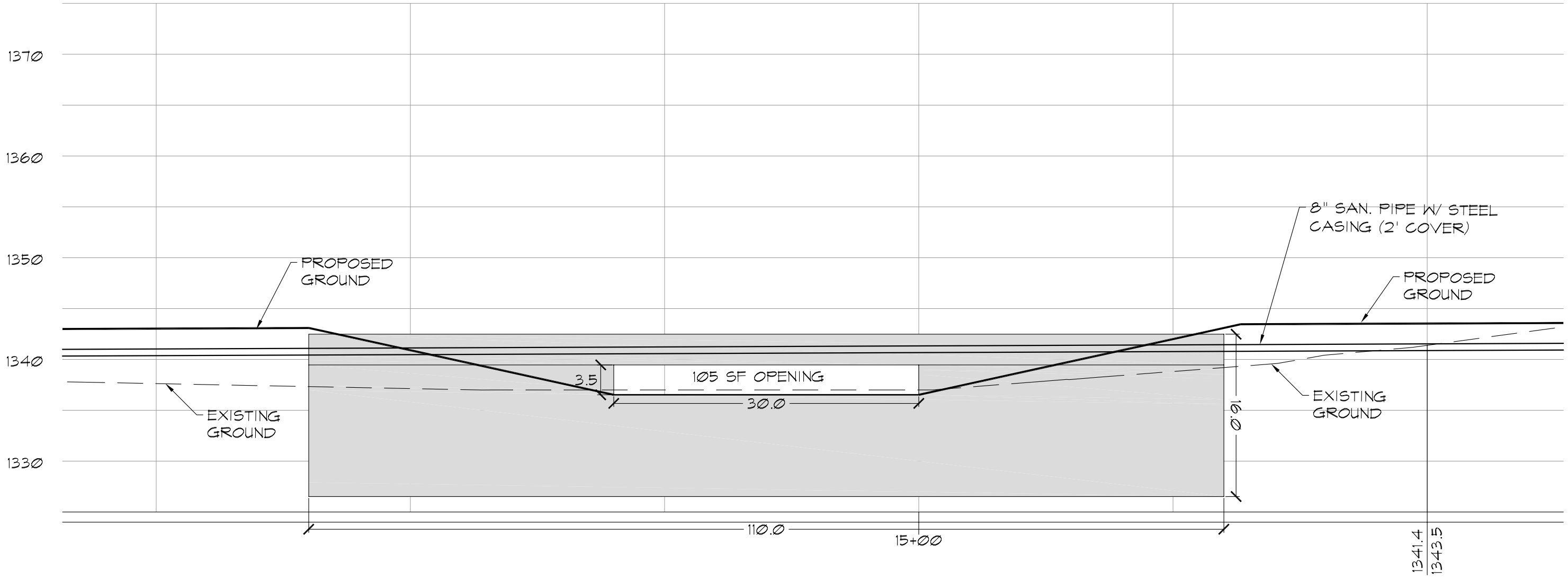

Sanitary Sewer / Weir Wall

KRUG SOUTH

January 23, 2007

NORTH
Scale: 1"=10'

MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316 - 684 - 9600

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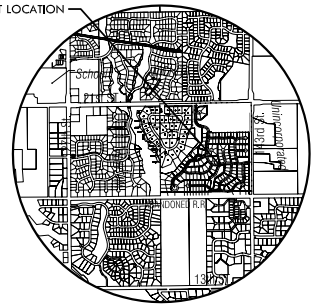
Appendix L
Drainage Plan

PLAT LOCATION



VICINITY MAP

BENCH MARKS

Bm 1 ⊕ RAILROAD SPIKE IN SOUTH FACE OF POWER POLE 3RD. POWER POLE WEST OF 143RD. STREET SOUTH SIDE OF 21ST. STREET.
Elev.= 1362.18 (NGVD 29)
174.78 (City Datum)

Bm 2 ⊕ RAILROAD SPIKE IN SOUTH FACE OF POWER POLE FIRST POWERPOLE WEST OF 143RD. STREET SOUTH SIDE OF 21ST. STREET
Elev.= 1370.29(NGVD 29)
182.89 (City Datum)

LEGEND

- CONIFEROUS TREE
- DECIDUOUS TREE
- SIGN
- POWER POLE
- ELECTRIC BOX
- LIGHT POLE
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- SECTION CORNER
- BENCHMARK
- EASEMENT
- BUILDING SETBACK
- FENCE
- STORM SEWER PIPE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE
- GAS PIPELINE
- TELEPHONE LINE
- UNDERGROUND ELEC.
- OVERHEAD ELECTRIC
- FIBER OPTIC CABLE
- DRAINAGE SUB BASIN
- DRAINAGE BASIN
- FLOW ARROW

A17 - AREA FOR SWS SIZING

NOTES

1. GEOGRAPHY: Located in the northeast Wichita in an area rapidly transitioning from agricultural uses into suburban residential. The property has access to K-96 via 21st Street. Existing surrounding land uses include suburban residential, rural residential, private schools, and agriculture production.
2. LOT TOTAL - 268 (264-Residential, 4-Commercial)
3. ANNEXATION: Presently unincorporated, to be annexed with platting.
4. EXISTING/PROPOSED USES: Agricultural and vacant rural residential
5. ZONING- Existing - "SF-20" Proposed - SF-5 and CUP
6. PLAT AREA: Gross - 116.448 acres
7. SURVEY DATE: Sept., 2006 (by MKEC)
8. PUBLIC UTILITIES: Municipal sanitary sewer shall extended to the site from the west southwest. Municipal water is available along 21st. St.
9. ACCESS CONTROLS: As shown
10. RESERVES: All reserves are platted for irrigation, landscaping, monuments, drainage, side-walks and utilities in designated areas. Some reserves shall be platted for floodplain, and or floodways.
11. FLOOD: According to FEMA FIRM Community Unit Panel 200321 0150A, Effective Date June 3rd, 1986; this property lies within flood zone "C", "areas of minimal flooding," and westerly portions lie within flood zone "A", "A2", and "B". *LOWEST OPENING TO BE DETERMINED AT THE TIME OF FINAL PLATTING.*
12. DRAINAGE: A drainage report shall accompany this plat. The property lies within a branch of Four Mile Creek drainage basin. A LOMA is expected to accompany the development.

LEGAL DESCRIPTION

A tract of land located in the Northeast One-Quarter of Section 11, Township 27 South, Range 2 East of the Sixth Principal Meridian, Sedgwick County, Kansas and being more particularly described as follows: COMMENCING at the Northeast corner of said Northeast One-Quarter; thence along the East line of said Northeast One-Quarter, on a Kansas coordinate system 1983 south zone bearing of S00°53'20"E, a distance of 850.00 feet to the POINT OF BEGINNING; thence continuing south on said East line, S00°53'20"E, a distance of 1811.32 feet to the Southeast corner of said Northeast One-Quarter; thence along the south line of said Northeast One-Quarter, S88°38'21"W, a distance of 2643.28 feet to the Southwest corner of said Northeast One-Quarter; thence along the west line of said Northeast One-Quarter, N00°57'48"W, a distance of 665.78 feet to a point on a southerly line of Reeds Cove 3rd Addition, Wichita, Sedgwick County, Kansas, as recorded on DOCK/FILM-No. 2857/3833 in the Sedgwick County Register of Deeds office; thence along the southerly and easterly lines of said addition through the following seven courses; S77°35'17"E, a distance of 149.26 feet; N73°29'13"E, a distance of 269.96 feet; N39°30'04"E, a distance of 1100.06 feet; N50°29'57"W, a distance of 150.00 feet; N00°59'12"W, a distance of 309.98 feet; S88°37'36"W, a distance of 75.00 feet; N00°57'58"W, a distance of 720.00 feet to a point on the North line of said Northeast One-Quarter; thence N88°37'37"E, along said North line, a distance of 563.62 feet; thence S00°53'20"E, parallel with the East line of said Northeast One-Quarter, a distance of 850.00 feet; thence N88°37'33"E, parallel with the North line of said Northeast One-Quarter, a distance of 1153.19 feet to the POINT OF BEGINNING, TOGETHER WITH, Beginning at the Northeast corner of said Northeast One-Quarter; thence along the East line of said Northeast One-Quarter, on a Kansas coordinate system 1983 south zone bearing of S 00 degree 53'20" E, a distance of 850.00 feet; thence S 88°37'33" W, parallel with the North line of said Northeast One-Quarter, a distance of 1153.19 feet; thence N 00°53'20"W, parallel with the East line of said Northeast One-Quarter, a distance of 850.00 feet to a point on the North line of said Northeast One-Quarter; thence along said North line, N 88°37'33" E, a distance of 1153.19 feet to the POINT OF BEGINNING. Said tract contains: 116.488 acres more or less.

NORTH
100 0 100 200
1"=100'

REVISED JANUARY 2007

MKEC ENGINEERING CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

KRUG SOUTH ADDITION
PROJECT NAME

DRAINAGE PLAN
SHEET TITLE

TMH	KWS/CMJ	KLA
DESIGN BY:	DRAWN BY:	CHECKED BY:
NOVEMBER 2006	05291	1 / 1
DATE	JOB NO.	SHEET/OF

J:\Civil\05291\Dwg\05291DP.dwg 09/25/2006 01:13:02 PM CST