WEEKES WASH – W.S.

SOIL CONSERVATION SERVICE

1983

IN REPLY REFER TO:

United States Department of the Interior

PDO-84-26

BUREAU OF LAND MANAGEMENT
Phoenix District Office
2015 West Deer Valley Road
Phoenix, Arizona 85027

April 25, 1984

TEMPORARY-USE PERMIT

Section A

1. There is hereby granted, pursuant to Title V of the Federal Land Policy and Management Act of 1976 (43 USC 1761), a nonexclusive, nonpossessory temporary-use permit to:

   Pinal County Highway Department
   Post Office Box 727
   Florence, Arizona 85232

   In case of change of address the holder shall immediately notify the authorized officer.

2. To use, subject to terms and conditions set out below, the following described public land:

   T. 1 N., R. 8 E., G&SRM, Pinal County, Arizona
   Section 1: SW¼NW¼, W½SW¼;
   Section 2: S½NE¼, S½.

3. Description of the temporary-use permit and purpose:

   The temporary-use permit will allow for the entry upon the subject public lands for the purpose of performing geologic testing and investigation. The geologic testing may include, but limited to: drilling of test holes, trenching, and minor excavation. The purpose of the testing is to determine the suitability of the subject lands for the location of a flood control structure.

A drawing showing the location of the temporary-use permit is attached as Exhibit "A".

Section B

TERMS AND CONDITIONS

1. This temporary-use permit is subject to all valid rights existing on the effective date of this permit.

2. The permittee agrees to comply with all applicable regulations contained in 43 CFR 2800.

3. If the temporary-use permit holder violates any of the terms and conditions of this grant, the authorized officer, after giving written notice, may declare the permit terminated.

4. There is reserved to the authorized officer, the right to grant additional permits or rights-of-way for compatible use on, over, under, or adjacent to the land involved in this permit.

5. This temporary-use permit shall be relinquished to the United States if the authorized uses are no longer needed.

6. The permittee shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this permit.

7. At least ten (10) days in advance of the commencement of surface disturbance activities authorized under this permit, the permittee shall notify the authorized officer.

8. Should any cultural resources be found during the testing authorized under this permit, work shall immediately cease and the Bureau of Land Management, Phoenix Resource Area Archeologist shall be notified.

9. During the geologic testing, any Arizona State protected plant species that cannot be avoided shall be salvaged. The removal and transportation of all salvaged plants shall be coordinated through and authorized by the Arizona Commission of Agriculture and Horticulture.

10. The Salt River Project shall be consulted prior to any testing within 100 feet of any of their powerline structures.

11. Term:

    The term of this permit is two (2) years from the effective date.

Section C

The effective date of this temporary-use permit is the date of execution by the authorized officer of the Bureau of Land Management.

The undersigned agrees to the terms and conditions of this temporary-use permit:

The temporary-use permit is executed this 25th day of April, 1984.

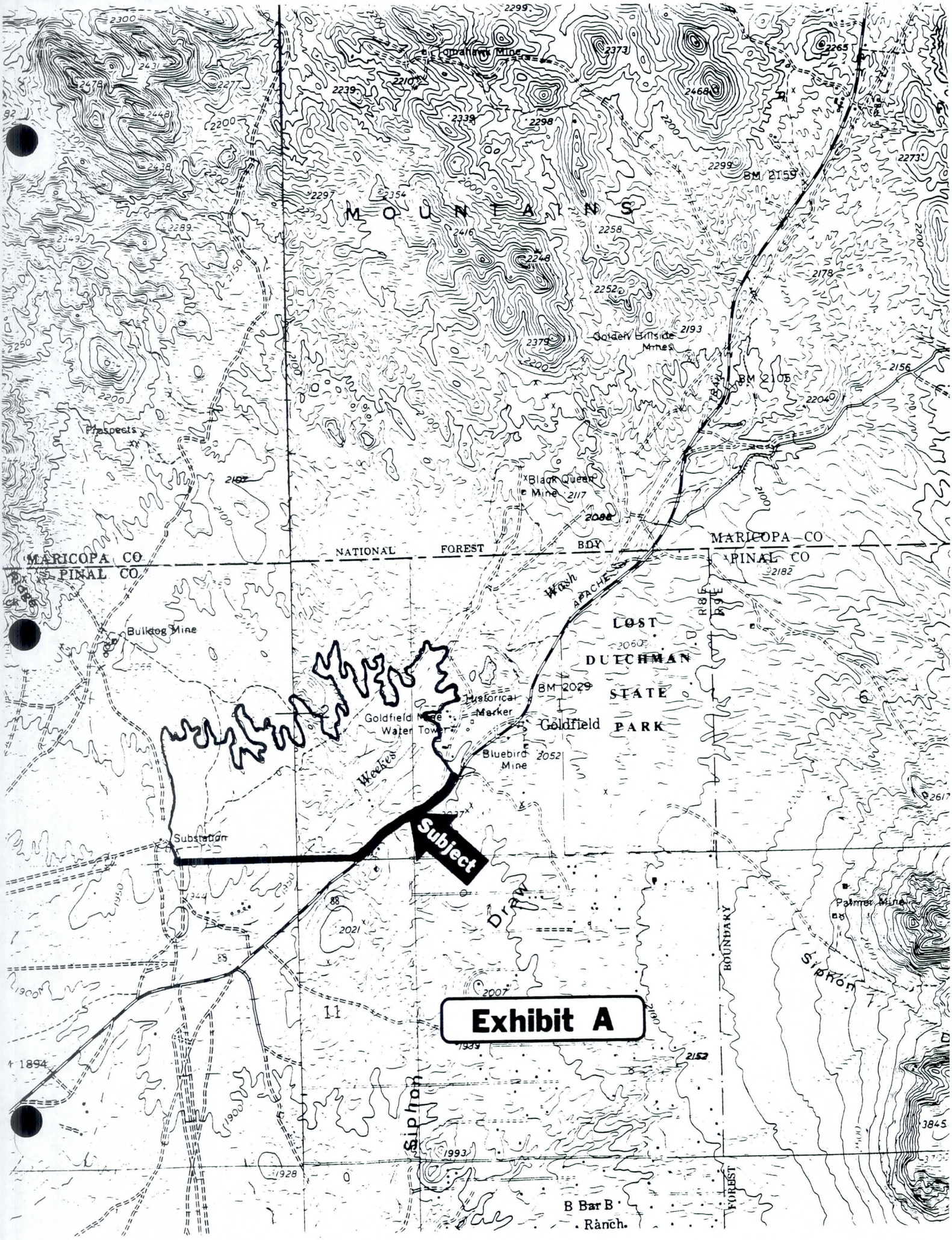
Jimmie B. Kerr
Signature

Chairman Bd of Supervisors
Title

4-16-84
Date

Marlyn V. Jones
BLM Authorized Officer

District Manager
Title


MOUNTAINS
Golden Eagle Mine
Golden Eagle Mines
BM 2159
BM 2105
Prospects
Black Queen Mine
MARICOPA CO
PINAL CO
NATIONAL FOREST BDY
MARICOPA CO
PINAL CO
Bulldog Mine
LOST DUTCHMAN STATE PARK
BM 2029
Historical Marker
Goldfield Mine Water Tower
Goldfield
Bluebird Mine
Weekes Wash
APACHE
Subject
Substation
Draw
Palmer Mine
Siphon
BOUNDARY
FOREST
Siphon
B Bar B Ranch
Exhibit A

:Rms

Bill P.

Room 3008 - Federal Building
230 North First Avenue
Phoenix, Arizona 85025

PROJ DEV MAINT-Historic Site Survey
Weeks Wash (Apache Junction)
Floodwater Retarding Structure

October 19, 1983

390

~~Robert B. Crawford~~
~~State Resource Conservationist~~
~~Soil Conservation Service~~
~~Phoenix, Arizona~~

Purpose of Trip: To check for archaeological and/or historic sites on planned structure.

Personnel Worked With: None

Accomplishments: I walked the entire area where the structure is to be built. Other than an active mining claim, I found no evidence of pre- or historical mining activities. I found pre-historic and 1890's material just south of the structure.

This bench would make an ideal equipment yard for whatever contractor gets the job. It would be well if they didn't use it. I will mark the area on a map for the design staff. I will also point it out on the ground before bids are let.

John C. York
State Biologist

cc: Ralph Arrington, SCE, Phoenix

RMS Aubrey Payne

United States
Department of
Agriculture

Soil
Conservation
Service

Chandler Field Office
110 North Oregon St.
Chandler, AZ 85224

Subject: Information for Access Permits for Weekes Wash Geologic Investigation

Date: October 7, 1983

To: Rod Hampton
Pinal County Highway Dept.
P.O. Box 727
Florence, AZ 85232

File Code:

The geologic investigation will require the excavation of test pits and test trenches. Test pits and trenches will be approximately three feet wide, up to sixteen feet in depth with lengths ranging from about fifteen to twenty-five feet. In the reservoir area the excavations will be located on a grid pattern at intervals of approximately two hundred feet. Pits will be excavated at approximately two hundred foot intervals in the foundation of dam area and at about one hundred foot intervals in the emergency spillway area.

Drill holes with a nominal diameter of approximately eight inches will be drilled with a rotary drill rig at one to two hundred foot intervals, on the average, in the dam foundation, emergency spillway, and principal spillway areas. It may be necessary to prepare access roads with a bulldozer in order to get the drill to selected drilling sites. Some drill holes may be required in the reservoir area. Specific drill site locations will be determined by geologic conditions as dictated by findings as the investigation progresses. It is anticipated that drill hole depths may range in depth to about fifty feet.

Some large test pits will be excavated utilizing a bulldozer with a ripper attachment to explore potential borrow sources in the reservoir area. These test pits may affect as much as 0.25 acre at each location.

Audrey Sanders, Jr.
9/30/83

cc: Bob Kilcrease
Ralph Arrington

WEEKES WASH FRS

Pre-survey meeting:

1. Responsible to get clearance for off road travel
2. Plane coordinates refer to (AZ)
3. Crown monuments!
4. Assigned designation letters for brass cap
   WKS for (WEEKES)
5. Review reference point example
6. Witness posts shall be solidly placed "into" the grd. (even if they have troubled with rock)
7. ℄ monument letters FRS, PS, & ES.
8. Graphite pencil markings mandatory!
9. Example of topo grid
10. Be sure to survey in ℄'s in topo grid.
11. Review borrow grid info required on stakes
    Work req'd — review 6. (b) (c) - diagrams in book & on sheet. -
13. Mobilization payment — recieptes to be copied onto 8½ x 11 paper & presented.
14. Centerline traverse to include primary monuments only within length of FRS ℄

ENGINEERS COST ESTIMATE

BUCKHORN-MESA WPP, ARIZONA

WEEKES WASH FRS SURVEY

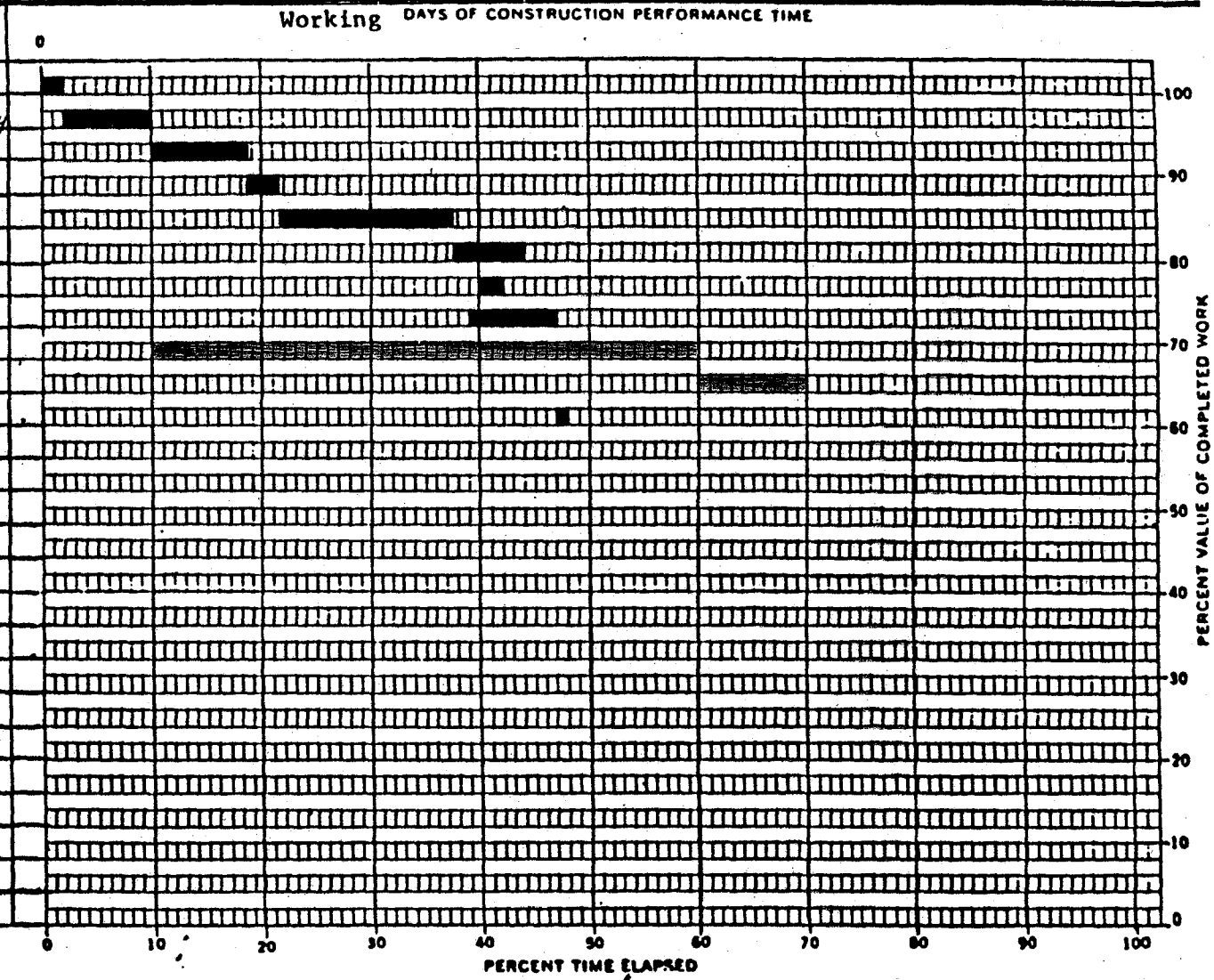
Item No.	Work or Material	Quantity	Unit	Unit Price	Amount
1.	Mobilization	1	Job	L.S.	$2,500.00
2.	Field Surveys				
	a. Primary Control Traverse	1	Job	L.S.	$2,820.00
	b. Centerline Traverse	1	Job	L.S.	$3,335.00
	c. Vertical Control	1	Job	L.S.	$1,320.00
	d. Topographic Grid	1	Job	L.S.	$5,200.00
	e. Borrow Area Grid	1	Job	L.S.	$1,840.00
3.	Computer Tape	1	Job	L.S.	$ 400.00
4.	Drafting	1	Job	L.S.	$1,600.00
				TOTAL:	19,015.00

APPROVED: Ralph M. Arrington 4-26-84
Ralph M. Arrington Date

SCHEDULE OF OPERATIONS FOR CONSTRUCTION

Watershed	State	Performance Time Estimate	Site
Buckhorn – Mesa	Arizona		Weekes Wash FRS SURVEY

Item No.	Item	Quant.	RATE
1	Mobilization	Allow	2 days
2 a.	Primary Trav.	Job	3/4 miles/day
b.	Centerline Trav.	Job	0.47 miles/day
c.	Vertical Control	Job	3 miles/day
d.	Topo Grid	Job	150 shots/day
e.	Borrow Grid	Job	3 pts/hr.
3	Computer Tape	Job	
4	Drafting	Job	
5	SCS Review		
6	A&E Revisions		
	Clean Up	Allow	1 day



EACH HORIZONTAL INTERVAL EQUALS 1 Working DAYS OF CONSTRUCTION PERFORMANCE TIME

SUBMITTED BY Donald Paulus DATE 6-28-84

TITLE Civil Engineer

APPROVED _____ Date

TITLE _____

WORKING DAYS REQUIRED 48

w/ SCS Review and A&E Revision

70 / USE 100 Calendar Days

CS-ENG-323 REV. 8-69

STATE Arizona | PROJECT Weekes Wash FRS, Survey

BY DE Paulus | DATE 6-28-84 | CHECKED BY | DATE | JOB NO.

SUBJECT Performance Time Worksheet | SHEET 1 OF 1

YEAR												
MONTH	Calendar Days/mo.	Max. No. Workable days/mo. [1]	Workable days Scheduled	Workable days, Accum.	Calendar days Scheduled/mo.	Workable days Scheduled	Workable days Accum.	Calendar days Scheduled/mo.	Workable days Scheduled	Workable days Accum.	Calendar days Scheduled/mo.	COMMENTS
JAN	31											
FEB	28											
MAR	31											
APR	30											
MAY	31											
JUN	30											
L	31											
AUG	31											
SEP	30	18	18	18	27							
OCT	31	21	21	39	31							
NOV	30	18	9	48	14							
DEC	31											
Calendar days Scheduled					72							
Accum. Calendar days Scheduled												

No. of days per week 5

No. of working days per mo. 20 (minus holidays)

DATA

1. Probable date, Notice to Proceed Sept 4, 84
2. Working days allowed for move-in 2
3. Working days allowed for performance 45
   Working days allowed for clean-up 1
   Total number Working days allowed 48
6. Calendar Days Allowed for Move-in 2
7. Total Number Calendar Days Allowed in Contract 72

[1] Note: used 5 year average rainfall ≥ 0.2 inches. Data collected from Mesa Experimental Farm.

Az. Weekes Wash FRS Survey

DE Paulus 6-26-84

Performance Time and Cost Est. 1

Primary Traverse

1. Clear Brush:

Approx. 1.5 miles @ 1 mile / day

$\frac{1\ day}{1\ mile} \times 1.5\ miles \times \frac{8\ hrs}{day} = \underline{\underline{12\ hrs.}}$

Use one man @ \$20.00/hr.

$\frac{\$20.00}{hr} \times 12\ hrs. = \underline{\underline{\$240.00}}$

2. Traverse:

Approx. 6 miles @ 2 miles / day

$\frac{1\ day}{2\ miles} \times 6\ miles \times \frac{8\ hrs}{day} = \underline{\underline{24\ hrs.}}$

Use 3 man crew @ \$60.00/hr.

$\frac{\$60.00}{hr.} \times 24\ hr. = \underline{\underline{\$1440.00}}$

3. Monuments:

Appox. 16 mon. @ 1 mon. / hr. = $\underline{\underline{16\ hrs.}}$

Use 1 man @ \$20.00/hr.

$\frac{\$20.00}{hr} \times 16\ hrs. = \underline{\underline{\$320.00}}$

4. Reference Points:

Approx 32 pts @ 2 pts / 45 min.

$\frac{45\ min}{2\ pts} \times 32\ pts \times \frac{1\ hr}{60\ min} = \underline{\underline{12\ hrs}}$

Az. Weekes Survey

DEP 6-26-84

Perf. time & Cost Est. 2

4(con't)

Use 2 man crew @ $40.00/hr.

$\$40.00/hr \times 12 \text{ hrs.} = \$480.00$

5. Set Steel Posts:

Approx. 48 posts @ 1 post/20 min

$20 \text{ min/post} \times 48 \text{ posts} \times 1 \text{ hr}/60 \text{ min} = 16 \text{ hrs.}$

Use 1 man @ $20.00

$\$20.00/hr \times 16 \text{ hrs.} = \$320.00$

6. Plane coordinates:

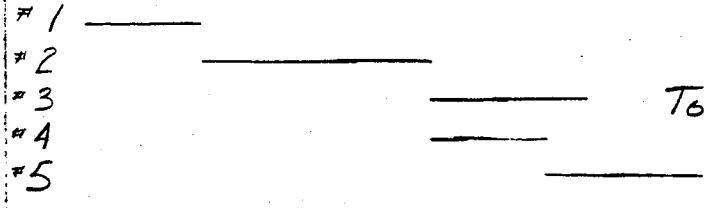
Approx. 16 pts @ 30 pts/hr.

$1 \text{ hr}/30 \text{ pts} \times 16 \text{ pts} = 0.5 \text{ hrs.}$

Use 1 man @ $25.00/hr.

$\$25.00/hr \times 0.5 \text{ hr.} = \$12.50$

Performance Time: (each block = 4 hrs.)



Total 64 hrs. = 8.0 days

Total Cost: 2812.50

Az. Weekes Survey

DEP 6-26-84

Perf. Time & Cost Est.

Centerline Traverse

1. Clear Brush:

Approx. 2.0 miles @ 1 mile/day = 2 days = 16 hrs

one man $20.00/hr x 16 hrs = $320.00

2. Traverse:

Approx. 4.0 miles @ 2 miles/day = 2 days = 16 hrs.

3 man crew $60.00/hr. x 16 hrs. = $960.00

3. Staking:

Approx. 9285 ft. @ 300 ft./hr. = 31 hrs.

2 man crew $40.00/hr x 31 hrs. = $1240.00

4. Monuments:

Approx. 23 @ 1 mon/hr. = 23 hrs.

1 man $20.00/hr. x 23 hrs. = $460.00

5. Steel Posts:

Approx. 31 @ 1 post/20 min = 11 hrs.

1 man $20.00/hr. x 11 = $220.00

6. Plane Coordinates:

(same as primary trav.) 0.5 hrs. $12.50

Az Weekes Survey

DEP 6-26-84

Perf. Time & Cost Est. 4

I. Reference Points:

8 pts. @ 2pts / 45 min = 3 hrs.

12 man $40.00/hr x 3 hrs. = $120.00

Performance Time:

#1	
2	
3	
4	
5	8.5 days
~~6~~	
7	

Total Cost: $3332.50

For ave 6pts/mi and 2.5mi/day = 9pts/mi

Vertical Control

Approx. 8 miles @ 3 miles/day = 22 hrs. ≈ 3 days

3 man $60.00/hr x 22 hrs = $1320.00

Per. Time 3 days

Total Cost $1320.00

Az. Weekes Survey

DEP 6-26-84

Perf. time & Cost Est. 5

Topographic Grid.

1. Cross Section lines:

Approx. 65 cross sections
use ≈ 20 shots / x-sec.
≈ 150 shots / day

$65 \text{ sec.} \times 20 \frac{\text{shots}}{\text{sec}} \times \frac{1 \text{ day}}{150 \text{ shots}} = 8.67 \text{ days} \approx \underline{70 \text{ hr}}$

$(2 \text{ man } \$40.\frac{00}{\text{hr}}) \times 70 \text{ hrs.} = \underline{\$2800.00}$

2. Profile lines:

Approx 5535 ft lengths
7 lines
Use → 20 shots / 700 ft
150 shots / day

$5535 \text{ ft} \times 7 = 38{,}745 \text{ ft.}$

$38745 \text{ ft.} \times 20 \frac{\text{shots}}{700 \text{ ft}} \times \frac{1 \text{ day}}{150 \text{ shots}} = \underline{7.5 \text{ days}}$
$= \underline{60 \text{ hours}}.$

$(2 \text{ man } \$40.\frac{00}{\text{hr}}) \times 60 \text{ hrs} = \underline{\$2400.00}$

Performance Time:

16 days

Total Cost: $5200.00

Az. Weeks Survey

DEP 6-26-84

Perf. time & Cost Est. 6

Borrow Grid

$5535 \frac{ft}{Line} \times 5 \text{ lines} \times \frac{1 \text{ pt}}{200 \text{ ft}} = 138 \text{ pts.}$

Use 3 pts/hr.:

$138 \text{ pts.} \times \frac{1 \text{ hr.}}{3 \text{ pts}} = \underline{46 \text{ hrs.}}$

$(2 \text{ man} \frac{\$40.00}{hr}) \times 46 \text{ hrs} = \underline{\$1840.00}$

Performance Time: use 6 days

Total Cost: $1840.00

Computer Tape

$\frac{16 \text{ hrs.}}{(= 2 \text{ day})} @ \$25.\frac{00}{hr} = \underline{\$400.00}$

Drafting

Use Approx. 1/2 time spent on topo
(Brady Land Survey Suggestion)

$8 \text{ days} \times \frac{8 \text{ hrs.}}{day} \times \frac{\$25.00}{hr} = \$1600.00$

(Each block = 1 day)

Performance Time for 1.) Borrow
2.) Comp Tape
3.) Drafting

= 8 days

Total "Work" Days = 43.5 days use 48 days

BID SCHEDULE

BUCKHORN-MESA WPP, ARIZONA

WEEKES WASH FRS SURVEY

Item No.	Work or Material	Quantity	Unit	Unit Price	Amount
1.	Mobilization	1	Job	L.S.	$ _____
2.	Field Surveys				
	a. Primary Control Traverse	1	Job	L.S.	$ _____
	b. Centerline Traverse	1	Job	L.S.	$ _____
	c. Vertical Control	1	Job	L.S.	$ _____
	d. Topographic Grid	1	Job	L.S.	$ _____
	e. Borrow Area Grid	1	Job	L.S.	$ _____
3.	Computer Tape	1	Job	L.S.	$ _____
4.	Drafting	1	Job	L.S.	$ _____
				TOTAL:	_____

DESIGN SURVEY - BUCKHORN MESA WATERSHED

WEEKES WASH FRS

1. SCOPE

This specification is for all operations described in the Sections below in order to:

a. Establish horizontal and vertical controls and centerline traverse for the following:

(1) Approximately 5535 feet of Weekes Wash FRS

(2) Approximately 600 feet of Weekes Wash Principle Spillway

(3) Approximately 3150 feet of Weekes Wash Emergency Spillway

b. Establish horizontal and vertical controls and primary horizontal control line traverse for approximately 30,000 feet as shown on the drawings.

c. Provide data for topographic grid for part (a.), (1), (2), and (3).

d. Plot profile data and compile centerline and topographic plan map on mylar manuscript for part (a), (1), (2), and (3).

e. Establish offset grid lines for Weekes Wash FRS Borrow Area.

f. Provide cross section data on a computer tape.

The survey maps shall be drawn in such a manner that the distances and angles are adequate for use in design of the structure and the preparation of construction drawings.

2. MOBILIZATION

a. This work shall consist of the mobilization of the Contractor's forces, and equipment necessary for performing the work required for the survey stated in the scope of these specifications.

b. It shall include the purchase of supplies, establishment of necessary facilities at the site, and the cost of transportation required to perform the work. It is not to include the residual value of engineering and office equipment or vehicles, but may include a use allowance or depreciation consideration for the period of use. The specification covers mobilization for work required by the contract at the time of its award.

3. FIELD SURVEYS

Before any field work is initiated the contractor shall contact the U.S. Bureau of Land Management and the Arizona State Land Department for any special instructions or requirements to follow during the performance of the

work. Vehicular movement shall be restricted to existing roads unless off road travel is approved by the above land management agencies.

Field surveys shall include all work necessary for the establishment of points which will subsequently be used for horizontal and vertical control and as layout and inspection control during future construction. All field surveys shall conform to current classifications and standards of accuracy of the U.S. Department of Commerce, National Geodetic Survey.

a. Primary Horizontal Control Traverse

The primary horizontal control traverse shall originate from and close upon section corner 9|10 / 16|15 T1N, R8E, Gila and Salt River Meridian using the plane coordinates based on section corner 9|10 / 16|15 T1N, which are N886,622.10, E618,446.48, and a bearing for the south section line, Secion 9 which is S89° 42' 07"W.

The traverse shall include all monumented primary horizontal control points, which shall be set at all angle points and at approximately one quarter mile intervals, and Section corners 3| 2 / 10|11 and 2| 1 / 11|12 T1N, R8E.

Plane Coordinates shall be established for all primary horizontal control points and section corners 3| 2 / 10|11 and 2| 1 / 11|12 T1N, R8E.

The azimuth closures of the primary horizontal traverse shall not exceed 20 seconds per 20,000 feet of the traverse and the position closure (ratio of error in loop closure to total length of loop) shall be 1:10,000 or better.

Monuments shall be set flush with the surface of the ground in such a manner that a Philadelphia survey rod will rest only on the brass cap and shall consist of a #5 reinforcing bar tied to a brass cap with four wraps of reinforcing wire concreted in a six inch diameter hole two feet deep or to the depth of rock. Installation shall be as shown in Exhibit A, primary control monuments, for the case which meets the existing field conditions. Brass caps shall be marked with a cross to designate location of the point and be stamped with the date, monument identification number and structure designation letters. Each monument shall have two reference points (number 4 steel reinforcing bar two feet long identified with a brass tag tied to the bar with a brass wire at protected location not more than two hundred feet from the monument. (See Exhibit A, reference point example).

All monuments and reference ponts shall be witnessed by a four inch by four inch redwood or treated wooden post five feet long painted white and extending three feet above ground or a six foot long standard steel fence post painted white and extending four feet above the ground.

b. Centerline Traverse

The centerline traverses shall originate from and close upon section 2 | 1 / 11 | 12 T1N, R8E, and shall include all monumented centerline and primary horizontal control points. The monumented centerline control points shall be set at all angle points, P.C.'s, P'T.'s, 1000 ft. stations, (10+00, 20+00 and etc.), the intersection of centerline FRS and centerline emergency spillway, and the intersection of centerline FRS and centerline principal spillway.

Monuments shall consist of a number four steel reinforcing bar concreted in a five inch diameter hole in such a manner that two inches will extend above the ground surface. Each monument shall be identified by a brass tag stamped with the centerline name and station (FRS 54+00, PS 5+00, etc.) and tied to the bar with brass wire. (Exhibit A, monuments for centerline control).

The monuments at PI's and angle points shall be accurately referenced to two points (number four steel reinforcement bar two feet long identified by a brass tag stamped with the centerline name and station,and tied to the bar with brass wire) on the primary traverse line as shown on the Reference Point example, Exhibit A.

All centerlines at the five hundred foot station 's (i.e. 15+00, 20+00, 25+00, etc.), PI's, angle points, and reference points shall be witnessed by four inch redwood or treated wooden post five feet long painted white and extending three feet above ground or a six foot long standard steel fence post painted white and extending four feet above the ground.

The steel posts at the five hundred foot stations shall be identified by a brass tag stamped with the centerline name and station (i.e. FRS 54+00, PS 5+00, etc.) and tied to the posts with brass wire.

Plane coordinates shall be computed for all centerline horizontal control points.

The azmuth closure of the centerline horizontal traverse shall not exceed thirty seconds times the square root of the number of stations or eight seconds per station and the position closure (ratio of error in loop closure to total length of loop) shall be 1:5000 or better.

Centerline Staking

1. Weekes Wash FRS

   This centerline shall be a straight line between PI's or angle points as shown on the alignment map (Exhibit K) and shall be stationed on 1"x2"x18" wooden stakes at all 100 ft. stations. The stationing shall begin at PI station 34+00.0 with increasing stations to the west and decreasing stations to the North East. All curves shall be staked on centerline, including the PC's and PT's with stations continuous on the curves. (The only station equation will be a backstation of PI's and this is not to be shown).

2. Weekes Wash FRS Emergency Spillway:

This centerline shall be a straight line between PI's or angle points as shown on the alignment map (Exhibit K) and shall be stationed on 1"x2"x18" stakes at one hundred foot stations. The stationing shall begin at the intersection point of the FRS centerline and the emergency spillway centerline (station 13+20 FRS equals station 211+31 emergency spillway) with increasing stations downstream and decreasing stations upstream. All curves shall be staked on the centerline including PC's and PT's with stations continuous on the curves (no equations).

3. Weekes Wash FRS Principal Spillway:

This centerline shall be a straight line as shown on the alignment map (Exhibit K) and shall be stationed on 1"x2"x18" stakes at one hundred foot stations. The stationing shall begin at the intersection point of the FRS Centerline and the Principal Spillway Centerline (station 37+60.00 FRS equals station 310+00 Principal Spillway) with increasing stations downstream and decreasing stations upstream.

All stakes shall be clearly marked with the stationing using a good quality graphite (lead) pencil.

c. Vertical Control Survey

Vertical control shall be based on B.M. U.S.G.S. Stamping S269-1948 located about 1.8 miles northeast of Apache Junction along state highway No. 88 at the Foothill Street intersection. The B.M. is 69.0 feet southeast of the centerline of the highway, 2 feet below the level of the highway, set in the top of a concrete post projecting 2 inches. The elevation is 1827.07.

Elevations shall be established upon the primary horizontal control monuments specified in Section 3. a. above. The error of closure (in feet) of any level loop or circuit shall not exceed plus or minus 0.035 times the square root of the length of loop or circuit (in miles). Level ties will be made to all U.S. Geological Survey Bench Marks found within one half mile of the control traverse.

Elevations shall be established on the centerline horizontal control traverse monuments specified in Section 3. b. The error of closure (in feet) of any level loop or circuit shall not exceed plus or minus 0.05 times the square root of the length of the loop or circuit (in miles).

d. Topographic Grid

The contractor shall provide a surveyed grid consisting of both cross section and profile lines and shall mark each 100-foot by 100-foot grid point with a 4-foot wood lath stake (refer to detail on Exhibit B).

Cross section lines shall be perpendicular to the designated centerline at each one hundred foot centerline station (i.e. 10+00, 11+00, 12+00, etc.). The limits shall be as defined in each area.

Profile lines shall be parallel to the designated centerline at 100-foot offsets right or left of the centerline to the limits as defined in each area.

The limits of both cross section and profile lines are defined right or left of the centerline as you look toward increasing stations.

Each cross section line and each profile line shall indicate existing conditions with as many points as needed to define washes, ridges, roads, buildings, utilities, fences, old mines, etc. Both lines shall also locate any of the other staked centerline alignments when crossed. Any culverts or bridges under Arizona State Highway 88 that would convey flow to or from the surveyed area are to be located, size given, and invert elevation recorded.

Area 1: The baseline shall be FRS centerline from Station 10+00 to Station 34+00. Begin cross sections and profiles at Station 10+00 and end at Station 34+00. The limits of the lines shall be 400 feet right of the FRS centerline and left to the north edge of Apache Trail, Arizona Highway 88. (See Exhibit B).

Area 2: The baseline shall be Emergency Spillway centerline from Station 234+00 to Station 244+00. Begin profiles at Station 234+00 and cross sections at Station 235+00 and end lines at station 244+00. The limits of the lines shall be 300 feet right of the Emergency Spillway centerline and left to the north edge of Arizona State Highway 88, Apache Trail. (See Exhibit C).

Area 3: The baseline shall be the straight line between FRS centerline PI Station 34+00 and PI Station 55+66.72. Begin profiles and cross sections at back tangent line Station 35+00 (or the intersection with cross section lines and profile lines surveyed for Areas 1 and 2) and end at tangent line Station 54+00. The limits of the lines shall be 400 feet right and 300 feet left of FRS centerline. (See Exhibit D).

Area 4: The baseline shall be the straight line between FRS PI Station 55+66.72 and the end of FRS centerline Station 65+00. Begin profiles and cross sections at back tangent line Station 53+00 (or the intersection with cross sections and profiles at Station 54+00 for Area 3) and end at Station 65+00. The limits of the lines shall be 400 feet right and 300 feet left of FRS centerline tangent. (See Exhibit E).

e. Borrow Area Grid

The contractor shall provide a borrow area grid with 200 feet x 200 feet spacing. This grid shall include and be an extension of the topographic grid with parallel and perpendicular lines to the FRS centerline. Each 200 foot grid point shall be marked with a 2"x2'x18" wood stake and a flagged 4 foot wood lath stake. Each stake shall be identified with the FRS centerline station, offset distance and existing ground elevation using a good quality graphite (lead) pencil. The extent of the borrow area grid survey is as follows:

Offset to Right	Begin FRS Sta.	End FRS Sta.	Remarks
200'	10+00	34+00	Covered by Topographic grid (need to set wood stake and flag lath)
	38+00	54+00	
400'	10+00	34+00	
	38+00	54+00	
600'	10+00	32+00	
	38+00	54+00	
800'	10+00	32+00	
	38+00	54+00	
1000'	10+00	30+00	
	38+00	54+00	
1200'	10+00	28+00	
	38+00	54+00	
1400'	10+00	28+00	
	38+00	54+00	

f. Recording Survey Data

Bound survey notebooks furnished by the Soil Conservation Service shall be used to record notes, sketches, numbers and records of field surveys. Only information pertaining to this contract shall be recorded in the notebooks. Notebooks shall be numbered consecutively beginning with number one (1) and shall be labeled to identify the project.

The pages of each bound field notebook shall be numbered consecutively. The page number, data, name of party members and assignment, and weather shall be recorded in the upper right-hand corner of the right-hand page. The first pages of each notebook shall be reserved and used for indexing the notes contained in the book.

Unless called for at an earlier date, the original copy of the survey notes shall be furnished to the Contracting Officer upon completion of the contract.

Examples of recording topographic grid line data are shown on Exhibits F and G.

4. COMPUTER TAPE

The Contractor shall put the cross section line data from the topographic grid of part 3 (d) on a computer tape. The tape shall be non-labeled, nine tract 800 BPI with EBCDIC characters preferred or ASCII characters. The Contractor shall provide the record length and blocking factor used on the tape.

The cross section name shall be the FRS centerline station as identified in the topographic grid survey notes for cross section lines. Cross sections

shall be oriented from left to right of the centerline looking toward increasing stations. Elevation and distance coordinates shall be used to define the sections. These coordinates shall be entered with the left most point first and proceed to the right most point. Distance coordinates shall have "zero" at the centerline and positive increasing values to the left and positive increasing values to the right (See instructions and example input Exhibits H and I).

5. DRAFTING

The topographic plan manuscripts shall be of convenient lengths at a scale of one inch equals one hundred feet. Match lines shall be adequately marked where the topography and centerlines extend beyond the limits of one sheet. All centerlines shall be drawn on the manuscripts with the station identified by number at 500 foot intervals (10+00, 15+00, 20+00, etc.) and each 100 foot station identified by a tick mark. The topography shall be developed from the cross sections and offset lines using two foot contour intervals. The location of all fences, utilities, natural washes, primary and centerline control points, bench marks, curve data, section corners, range, townships and coordinate grid shall be shown on the plan maps.

The profile stationing shall correspond with the stationing shown on the plan manuscript and have the following information plotted to the scale on one inch equals ten feet (1"=10') vertical and one inch equals one hundred feet (1"-100') horizontal on mylar sheets with standard profile grid. The centerline plan and profile manuscripts shall also be completed in separate sets as follows:

a. The existing ground line of the FRS centerline

b. The existing ground line on the Emergency Spillway centerline

c. The existing ground line on the FRS principal Spillway centerline

Line work and lettering shall be of such quality as to produce good clear, close prints by either direct or by photo printing process. Plastic lead (such as Pentel P-1) shall be used.

6. COORDINATION

As Bid Item 2 nears completion, the Contracting Officer will meet with the Contractor in the field to determine the progress of the work and to establish agreement as to those items necessary for completion. Upon completion of the work, the Contractor shall furnish the Contracting Officer the following items:

a. Original mylar plan and profile manuscripts and three blueline prints of each

b. List of field and plane coordinates for the primary and secondary horizontal control points.

c. Survey network control diagram

d. Field notes and records

e. Traverse loop closures and bearings

f. Three copies of printouts from the completed computer tape

7. MATERIAL FURNISHED BY SCS

The Contracting Officer will provide the Contractor with the following:

a. Proposed Rights-of-Way and Alignment Map

b. Bound survey notebooks, SCS-ENG-191

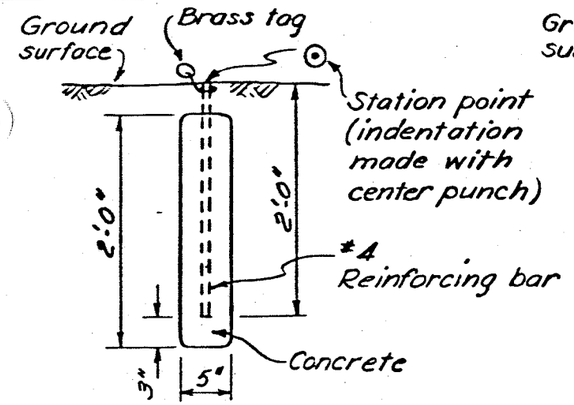
c. Brass Caps

8. PAYMENT

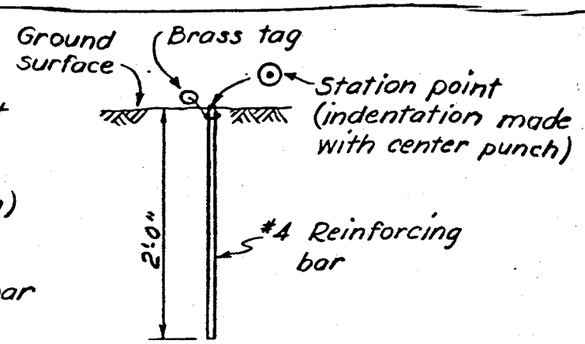
a. Payment for Item 1, Mobilization, will be made as the work proceeds, after presentation of invoices by the Contractor showing his actual mobilization costs and evidence of the charges of suppliers and others for mobilization performed by them. If the total of such payments is less than the contract lump sum for mobilization, the unpaid balance will be included in the final contract payment. Total payment will be the lump sum contract price for mobilization, regardless of actual cost to the Contractor.

   Payment of the lump sum contract price for mobilization will constitute full compensation for all labor, materials, equipment and all other items necessary and incidental to completion of the work.

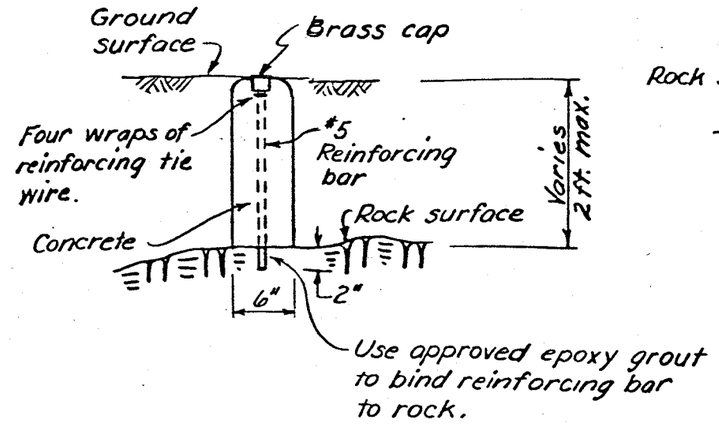
b. Payment of Items 2 through 4 in the schedule will be made at the contract lump sum price for Field Surveys, Computer Tape and Drafting and will constitute full compensation for all labor, materials, equipment and all other services and items necessary and incidental to completion of the work.



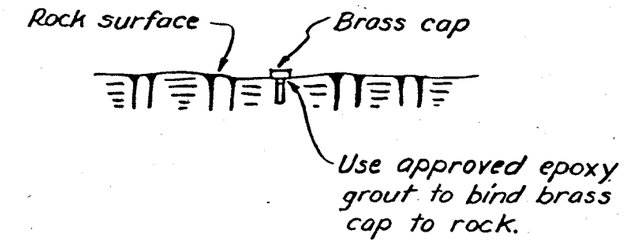
MONUMENTS FOR CENTERLINE CONTROL



REFERENCE POINTS

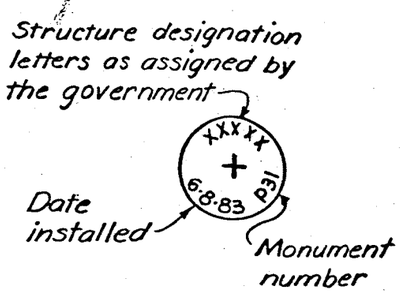


CASE 1

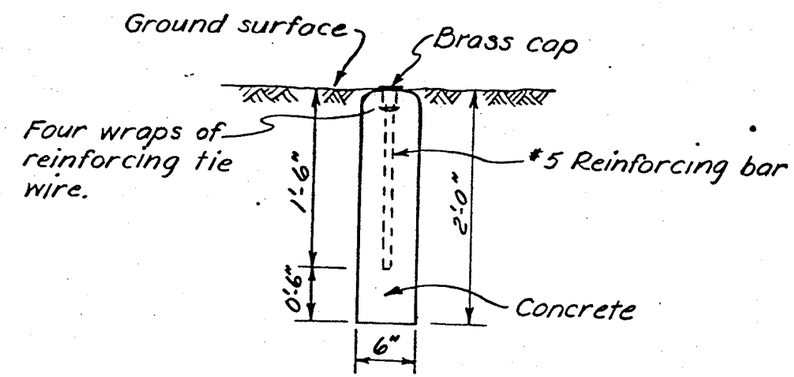


CASE 2

Note: If rock is encountered within 2 feet of the ground surface, the technique presented in cases 1 and 2 of Monuments for Primary Control shall be used.

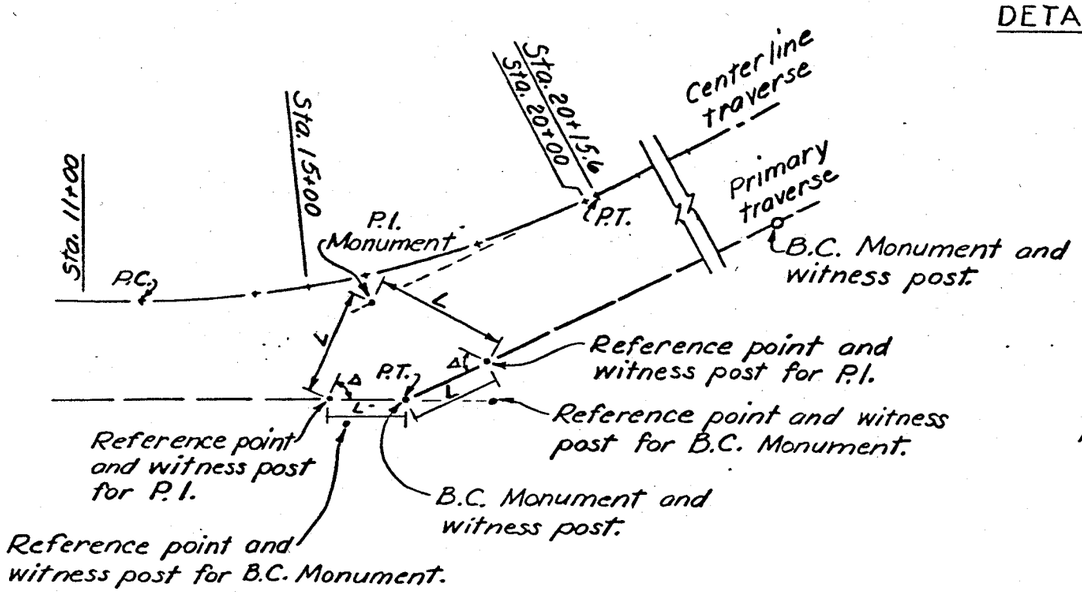


BRASS CAP DETAIL



CASE 3

MONUMENTS FOR PRIMARY CONTROL



REFERENCE POINT EXAMPLE

Notes: Reference points on Primary traverse should be on tangent. They may be located at other locations (if necessary) within 200 feet of the monument.

Concrete shall be crowned at the ground surface so that a Philadelphia rod will be able to rest entirely on the brass cap.

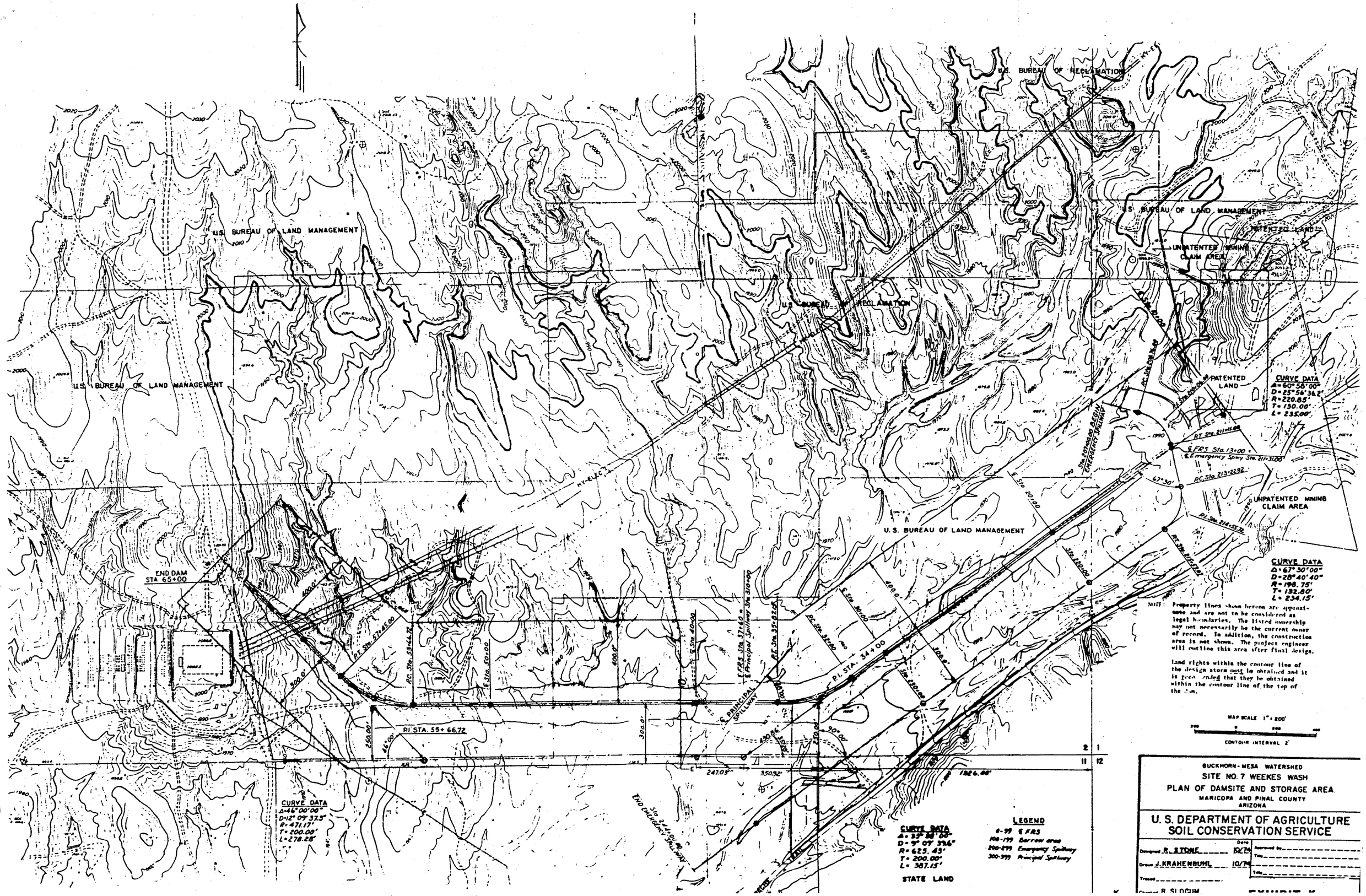
MONUMENT DETAILS

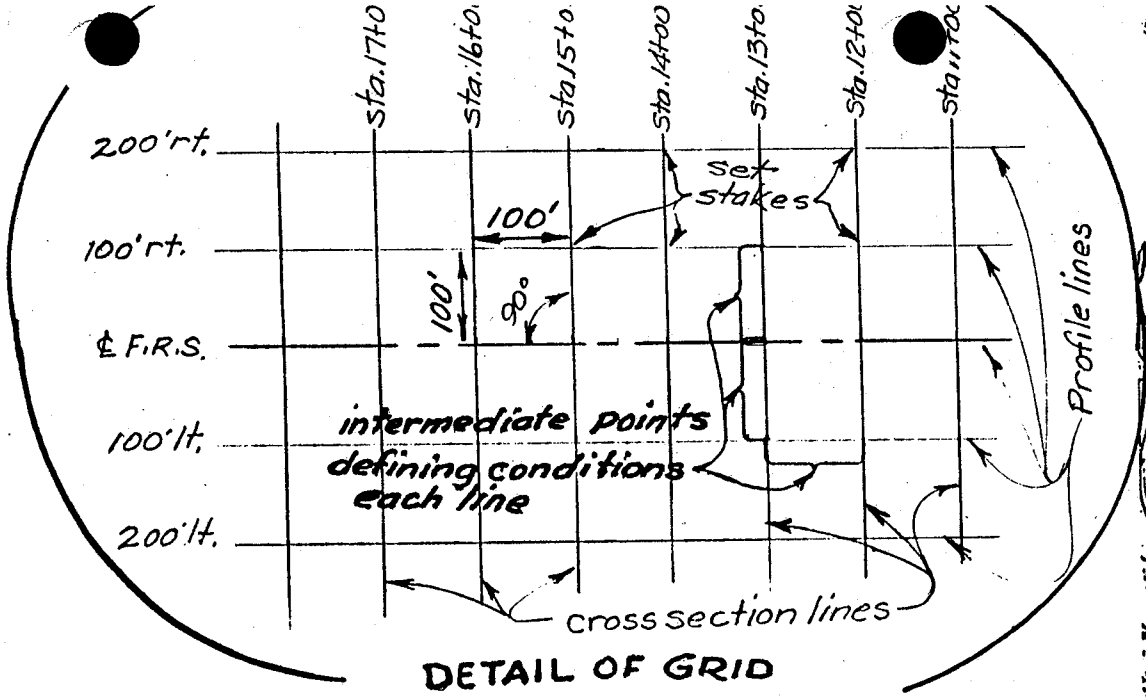
WEEKES WASH F.R.S.
BUCKHORN-MESA W.P.P.
PINAL COUNTY, ARIZONA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed ____ Date ____
Drawn ____
Traced E.F.S. 6-86
Checked ____
Approved by ____
Title ____
Date ____

EXHIBIT A


U.S. BUREAU OF LAND MANAGEMENT
U.S. BUREAU OF RECLAMATION
PATENTED LAND
UNPATENTED MINING CLAIM AREA
END DAM STA 65+00
PI. STA. 55+66.72
PI. STA. 34+00
℄ PRINCIPAL SPILLWAY
℄ FRS Sta. 13+00 = ℄ Emergency Spwy Sta. 211+31.00
EMERGENCY SPILLWAY
END EMERGENCY SPILLWAY
CURVE DATA
Δ=46°00'00"
D=12°09'37.5"
R=471.17'
T=200.00'
L=278.28'
CURVE DATA
Δ=60°58'00"
D=25°56'36.2"
R=220.85'
T=130.00'
L=235.00'
CURVE DATA
Δ=67°50'00"
D=28°40'40"
R=198.75'
T=132.80'
L=234.15'
CURVE DATA
Δ=35°38'00"
D=9°09'35.6"
R=625.43'
T=200.00'
L=387.15'
STATE LAND
LEGEND
0-99 ℄ FRS
100-199 Borrow area
200-299 Emergency Spillway
300-399 Principal Spillway
NOTE: Property lines shown hereon are approximate and are not to be considered as legal boundaries. The listed ownership may not necessarily be the current owner of record. In addition, the construction area is not shown. The project engineer will outline this area after final design.
Land rights within the contour line of the design storm must be obtained and it is recommended that they be obtained within the contour line of the top of the dam.
MAP SCALE 1" = 200'
CONTOUR INTERVAL 2'
BUCKHORN-MESA WATERSHED
SITE NO. 7 WEEKES WASH
PLAN OF DAMSITE AND STORAGE AREA
MARICOPA AND PINAL COUNTY
ARIZONA
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
Designed R. STONE 10/74
Drawn J. KRAHENBUHL 10/74
Traced
Checked R. SLOCUM
Approved By
Title



DETAIL OF GRID

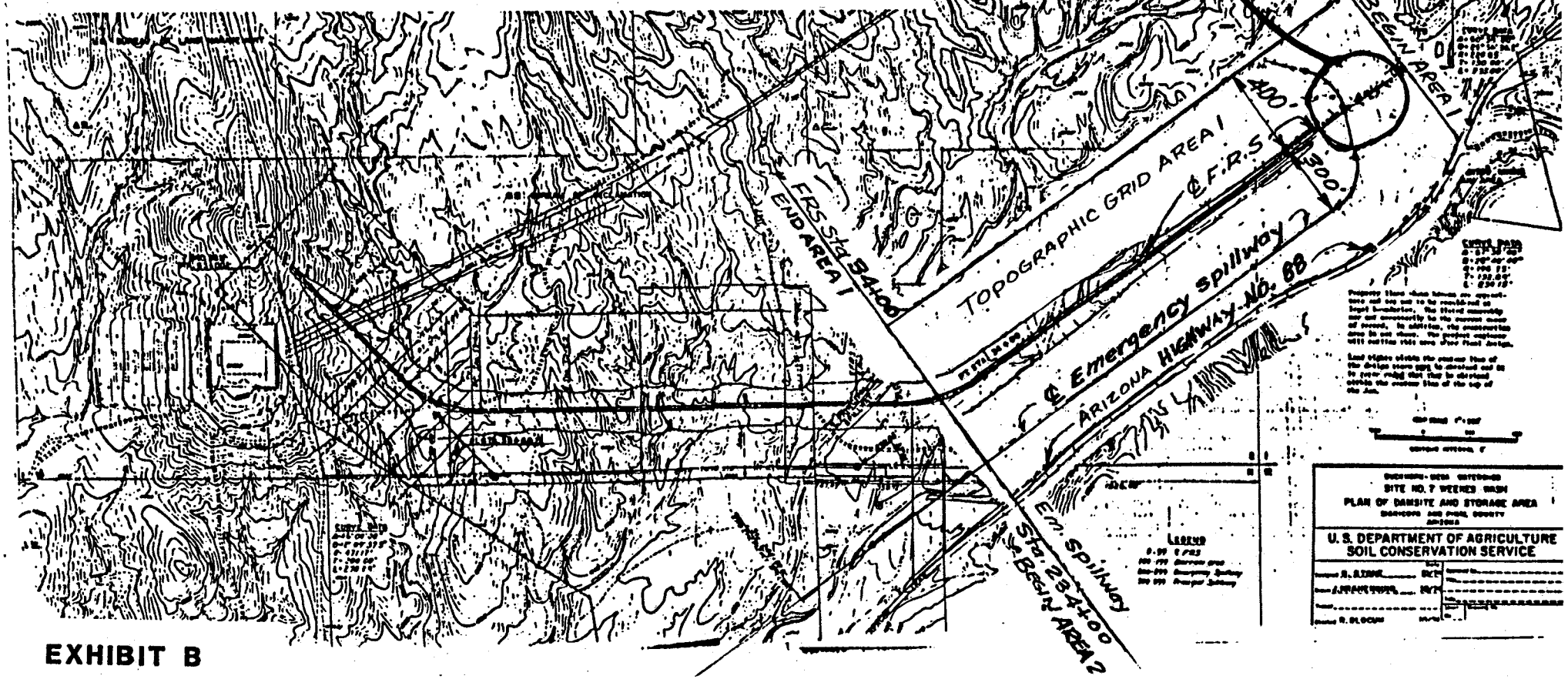


EXHIBIT B

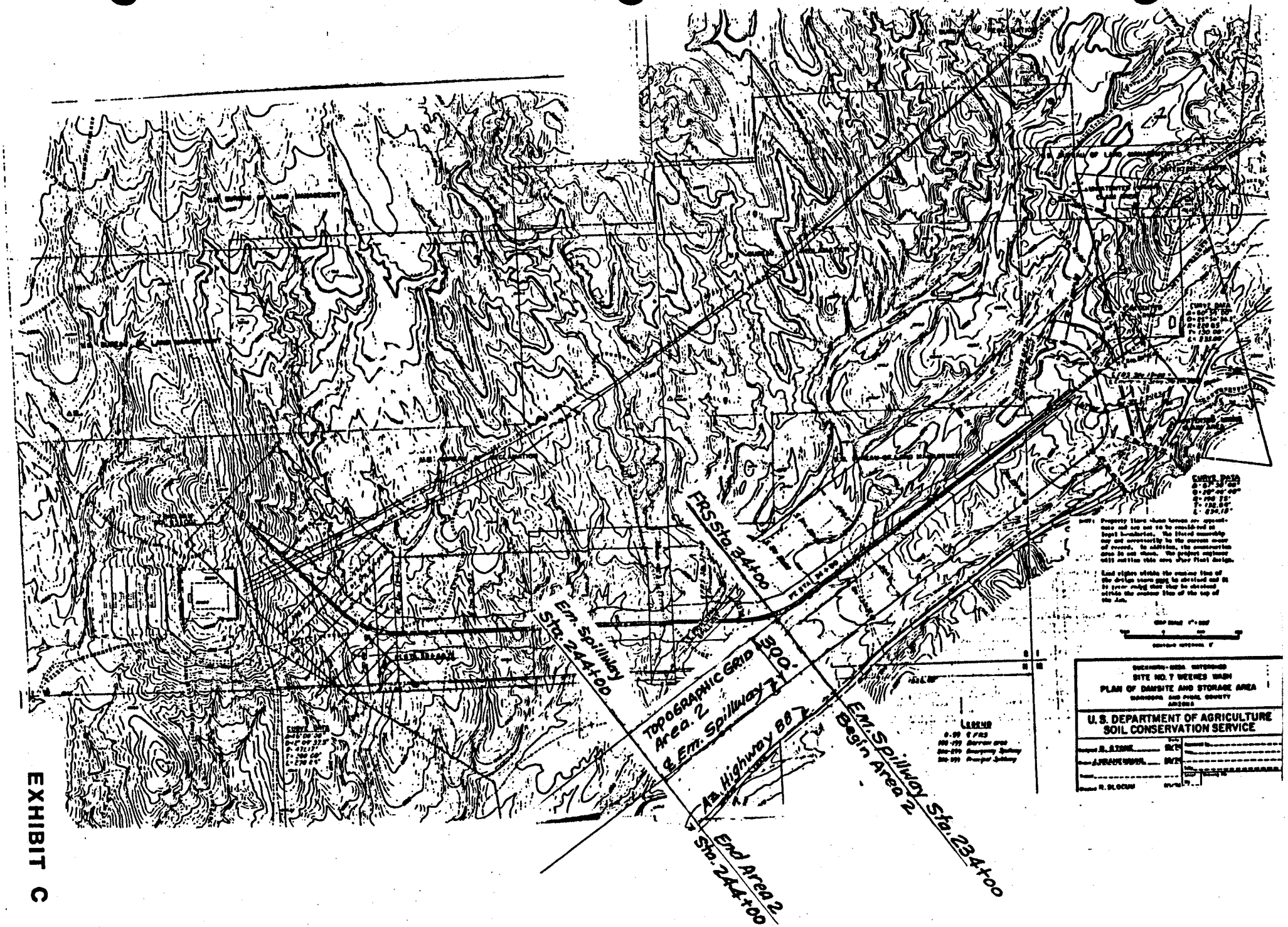

SITE NO. 7 WEEKES WASH
PLAN OF DAMSITE AND STORAGE AREA
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
LEGEND
FRS Sta. 344+00
Em. Spillway Sta. 244+00
TOPOGRAPHIC GRID Area. 2
℄ Em. Spillway
300'
Ariz. Highway 88
End Area 2 Sta. 244+00
Begin Area 2
EM. Spillway Sta. 234+00

EXHIBIT C

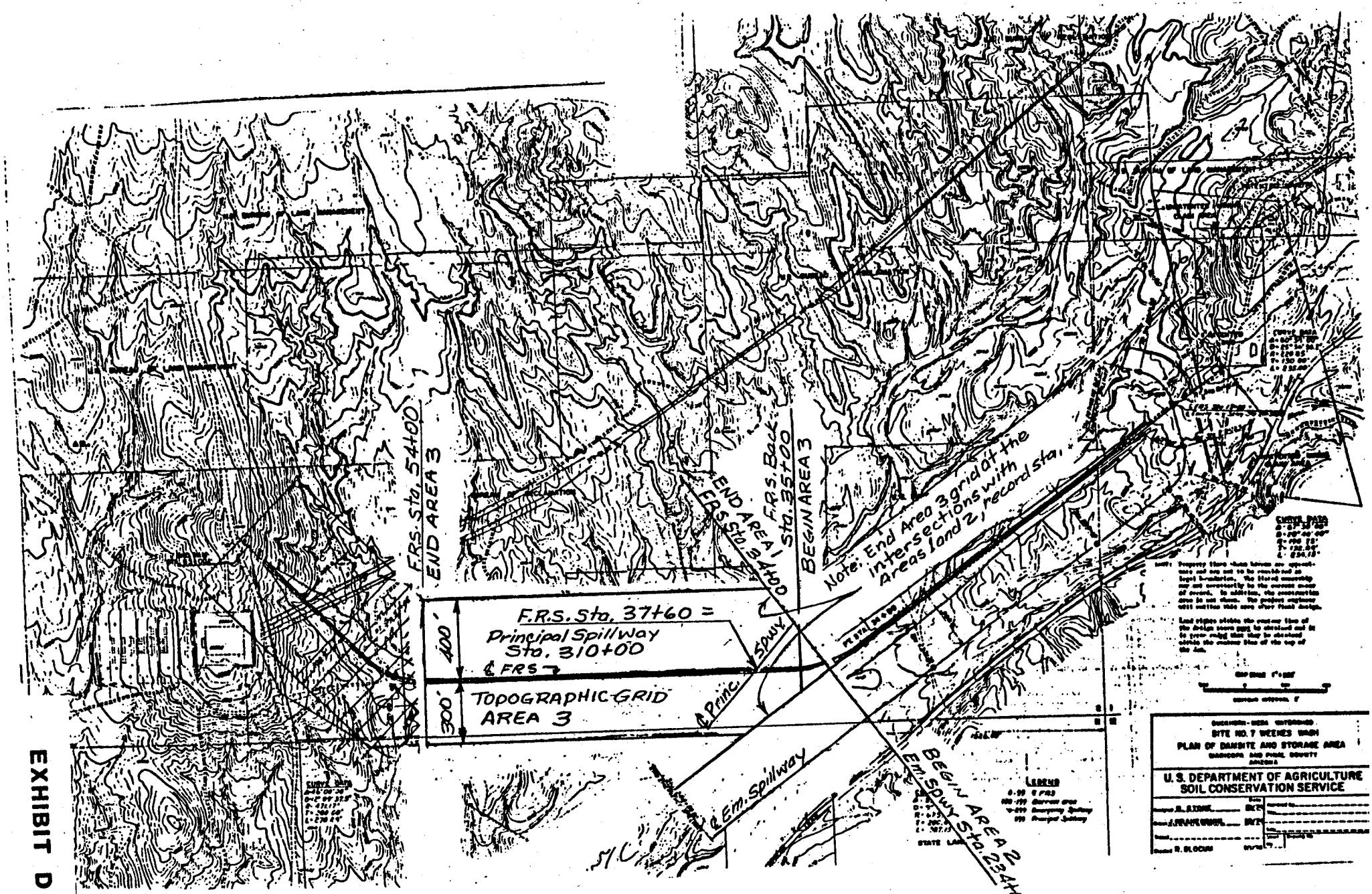

F.R.S. Sta. 54+00
END AREA 3
END AREA 1
F.R.S. Sta. 34+00
F.R.S. Back Sta. 35+00
BEGIN AREA 3
Note: End Area 3 grid at the intersections with Areas 1 and 2, record sta.
F.R.S. Sta. 37+60 =
Principal Spillway
Sta. 310+00
℄ FRS
400'
300'
TOPOGRAPHIC GRID
AREA 3
℄ Princ. Spwy.
℄ Em. Spillway
Em. Spwy. Sta. 234+00
BEGIN AREA 2
LEGEND
SITE NO. 7 WEEKS WASH
PLAN OF DAMSITE AND STORAGE AREA
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

EXHIBIT D

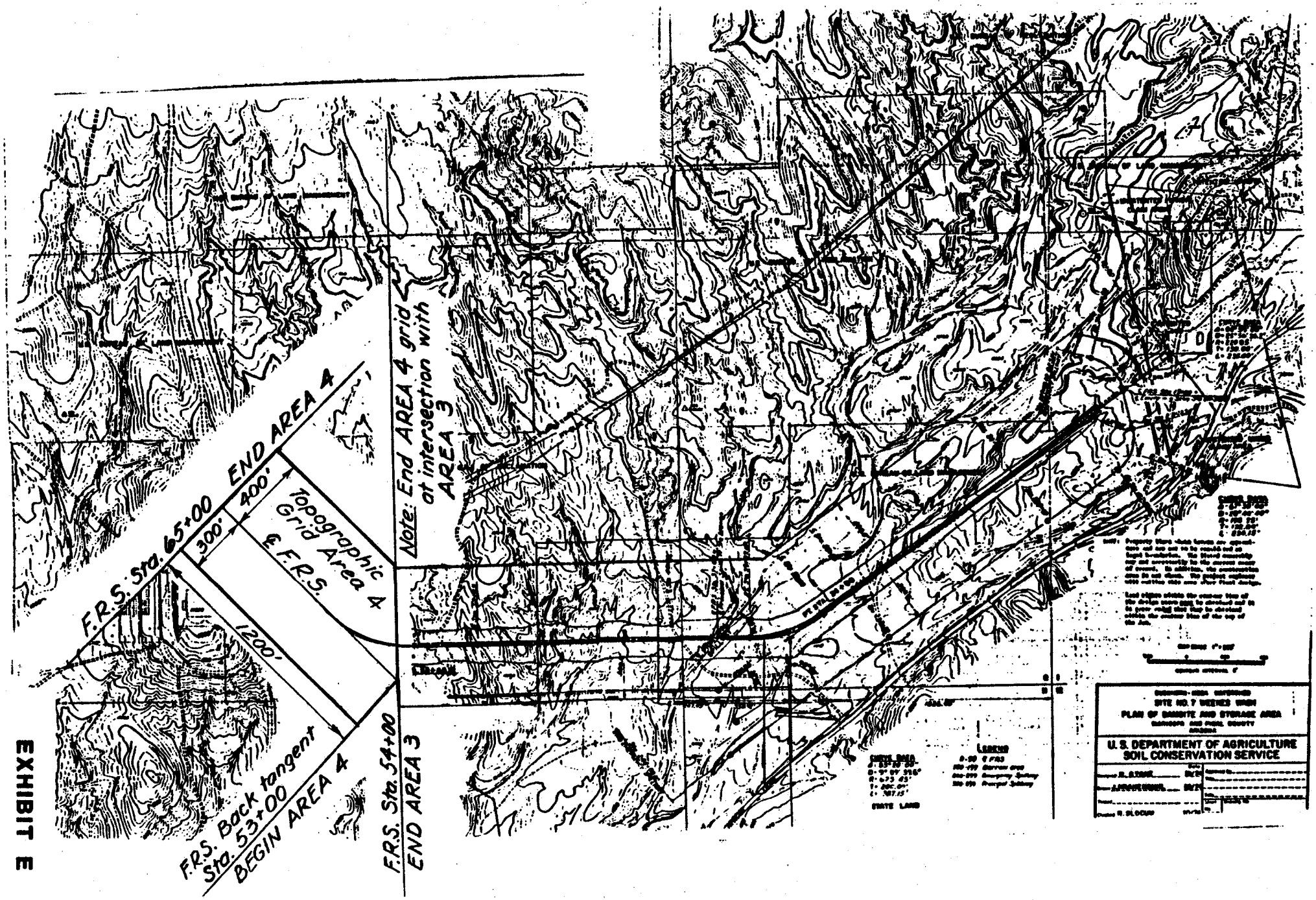

F.R.S. Sta. 65+00
END AREA 4
300'
400'
Topographic Grid Area 4 ℄ F.R.S.
1200'
F.R.S. Back tangent Sta. 53+00 BEGIN AREA 4
F.R.S. Sta. 54+00 END AREA 3
Note: End AREA 4 grid at intersection with AREA 3
SITE NO. 7 BEEVES WASH
PLAN OF BORROW AND STORAGE AREA
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
LEGEND
STATE LAND

EXHIBIT E

(Example)

Weeks Wash — Topographic grid — Cross section

π John Doe
φ R. Roe
Chn. J. Smith

Nov. 14, 3
Clear & warm
Some wind

Sta.	B.S. (+S)	H.I.	F.S (-S)	Elev. Example Not a true elev.	
B.M#(1)	1.32	1995.73		1994.41	Concrete monument @ Sta. 10+00.00 ℄ F.R.S.
					Record cross section for Sta 14+00
400' Rt.			14.7	1981.0	400' limit
344' Rt.			15.7	1980.0	intersect ℄ emergency spillway Sta. 207+40
330'			17.0	1978.7	invert wash
315'			17.3	1978.4	invert wash
300'			15.8	1979.9	
225'			13.6	1982.1	
200'			9.7	1986.0	
150'			5.7	1990.0	
100'			5.4	1990.3	
℄			5.5	1990.2	℄ F.R.S. @ Sta. 14+00
100' lt.			5.6	1990.1	
200' lt.			7.0	1988.7	
220'			7.6	1988.1	intersect ℄ emergency spillway @ Sta 213+61
270'			9.7	1986.0	invert of wash
280'			9.6	1986.1	invert of wash
300'			9.1	1986.6	
360'			10.0	1985.7	
400'			12.5	1983.2	invert of wash
415'			12.6	1983.1	invert of wash
416'			10.2	1985.5	Top of vertical bank
432'			7.5	1988.2	
500'			6.4	1989.3	
520'			6.0	1989.7	North edge Highway 88

EXHIBIT F

(Example)

Weeks Wash — π John Doe
Topographic grid — φ R. Roe
Profile line — Chn J. Smith

Nov. 14, 1983
Clear & warm
Some wind

Sta.	B.S. (+)	H.I.	F.S. (−)	Elev. Example Not a true elev.	Remarks
B.M. #(X)	1.32	1995.73		1994.41	concrete monument Sta 10+00.00 ℄ F.R.S.
					Record line 200 feet right of ℄ F.R.S.
10+00			1.6	1994.1	
10+50			7.7	1988.0	
11+00			8.0	1987.7	
11+30			9.7	1986.0	
12+00			11.3	1984.4	
13+00			12.4	1983.3	F.R.S. ℄ Sta 13+00 = Emg. Spillway ℄ Sta 209+16
13+60			11.7	1984.0	
14+00			13.2	1982.5	
T.P.			13.07	1982.66	Top of 2"x2" hub at ℄ Sta 14+00 200' Rt.

EXHIBIT G

USDA - FOREST SERVICE

CARD PUNCHING & VERIFYING INSTRUCTIONS

INSTRUCTIONS: Use following symbols in functions column

Symbol	Function
D	DUPLICATE
P	PUNCH
S	SKIP
X-S	X-SKIP
V	VERIFY
L	LEFT JUSTIFY

JOB NAME: Centennial Levee Topographic Surveys

JOB NUMBER:

SOURCE DOCUMENT: RDS Program

PAGE ___ OF ___

CARD FORM USED

PREPARED BY: DEP

DATE:

Field No.	CARD FIELD	COLUMNS FROM	COLUMNS TO	NO. COLUMNS	FUNCTIONS	REMARKS
	Forest Number	1	2			03 (use this number)
	ERD Number	3	6			0004 (" " ")
	Card Type	7	8			50 (" " ")
	Section Number	9	13			
	Card Number	14				The No. of the card used to describe one X-section, (starting with one(1))
		15	16			SKIP
	Station	17	24			XXXX + XX. X
		25	31			SKIP
	Elevation	32	36			XXXX. X
	Distance	37	40			
		41				SKIP
	Elev.	42	46			
	Dist.	47	50			
		51				SKIP
	Elev.	52	56			
	Dist.	57	60			
		61				SKIP
	Elev.	62	66			
	Dist.	67	70			
		71				SKIP
	Elev.	72	76			
	Dist.	77	80			

EXHIBIT H

6600-4 (11/66)

AZ Eng C-1

USDA-SCS

CROSS SECTION DATA

Sheet ___ of ___

DESIGNER | STATE | DATE

FN NUMBER (1-2) 03 2) | ERD NUMBER (3-6) 0004 6) | PROJECT NAME Example Input

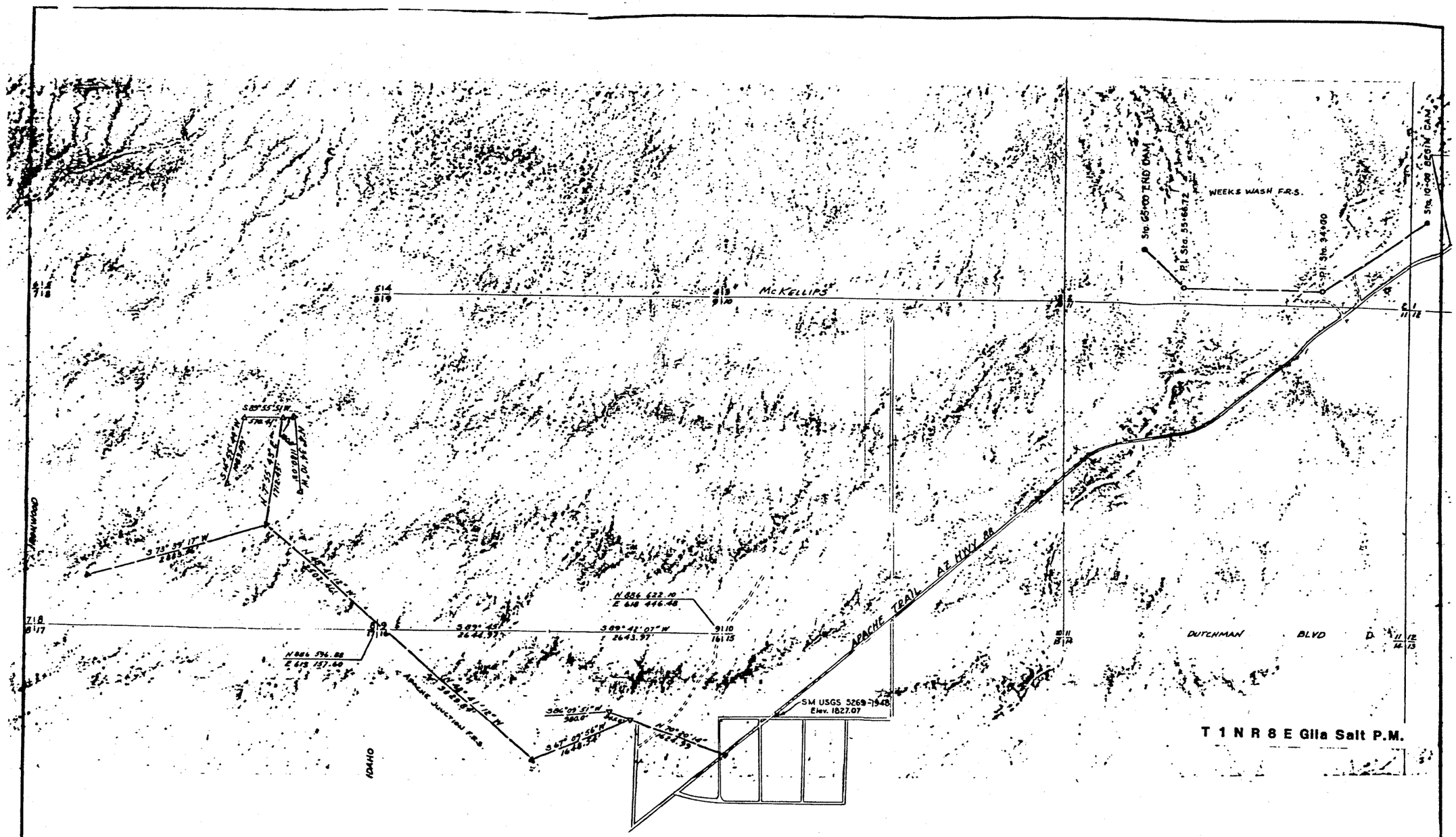
CARD TYPE (7-8) 50 | RDS Program

Example of Zero station @ ℄

Example of Card Numbers in Field 14 for the same section

SECTION NO.	CD NO	LN	EQ	STATION	N/A	T	ELEV. ①	DIST.	T	ELEV. ②	DIST	T	ELEV ③	DIST	T	ELEV ④	DIST	T	ELEV ⑤	DIS
9 13	14	15	16	17 24	25 30	31	32	40	41	42	50	51	52	60	61	62	70	71	72	
XXXX	X	X	X	XXXX+XX.X	XXXX.XX	X	XXXX.X	XXX.X	X	XXXX.X	XXX.X	X	XXXX.X	XXX.X	X	XXXX.	XXX.X	X	XXXX.X	XXX
1.000	1			1.0+00.00			01.00.8	5.00.0		0097.3	0.00.0		01.1.18	1.00.0		01.12.1	5.00.0		0.12.0.7	999
2.00	1			2.0+00.00																
2.000	2			2.0+00.00																
2.00	3			2.0+00.00																

EXHIBIT I



LOCATION MAP

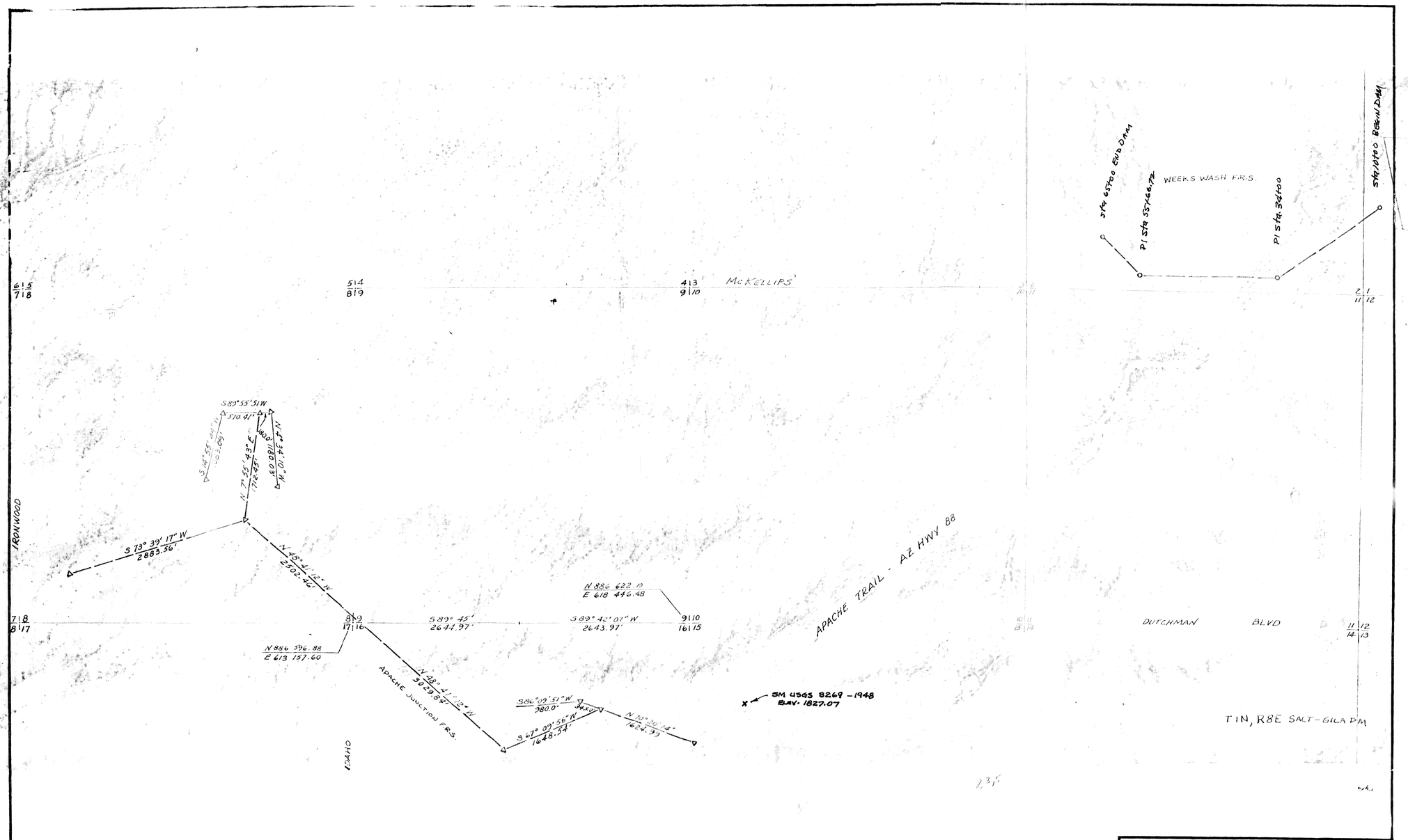
WEEKES WASH F.R.S.
BUCKHORN-MESA W.P.P.
PINAL COUNTY, ARIZONA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Drawn JEB 6-84

J

EXHIBIT J



LOCATION MAP
WEEKES WASH F.R.S.
BUCKHORN - MESA W.P.P.
PINAL CO. ARIZONA

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

	Date		
Designed		Approved by	
Drawn JEB	6-84	Title	
Traced		Title	
Checked		Sheet No. of	Drawing No.

SCS-ENG-313 (REV. 1-74)

☆ U.S. GOVERNMENT PRINTING OFFICE 1975 O - 491-725

J

N886 622.10
E618 440.10
N886 596.86
E613 157.60

General Scope for Advertisement
of Weekes Wash F.R.S.
+ Cost Est. (Rough Est.)

The scope of work includes:

a.) Establishing horizontal and verticle controls and centerline traverse for the following:
   (1) Approx. 5535 feet of Weekes Wash F.R.S.
   (2) Approx. 600 feet of Weekes Wash Principle Spillway
   (3) Approx. 3150 feet of Weekes Wash Emergency Spillway

b.) Establishing horizontal and verticle controls and primary horizontal control line traverse for approx. 30,000 feet.

c.) Provide data for cross section grids for part a.); (1), (2), and (3).

d.) Plot profile data and compile a centerline and topographic plan map on mylar manuscript for part a.); (1), (2), and (3).

e.) Establish offset grid lines (200ft x 200ft) for Weekes Wash F.R.S. Borrow Area (approx. 112 acres)

f.) Provide cross section data on a computer tape.

Location - Pinal County, Apache Junction, Arizona
6 miles EAST OF APACHE JUNCTION TRAIL

$ 16,713.00 + mob. 2500

$ 19213.00

3400

86.4

1

Cost Est.
"Rough Est."

Primary Trave. (2a)

4 & 5 → 8706 + 8000 + 8400 + 16200 + 6700 + 5160 + 5208 + 11500 + 9000 + 8160 + 10950 + 15540 + 15000 + 12500 + 6000 + 8950 + 21230 + 30982

Av. $9748 / 11.5 mi = $848/mi

Apache Bulldog → 2600 + 3400 + 2712 + 4500 + 4800 + 3384 + 4800 + 4890 + 2500 + 10210 + 4090 + 5790 + 9300 + 4200 + 10650 + 10000 + 13000.

Brushy

Av. $5930 / 4.8 miles = $1235/mi

USE $1000.00/mi x 6mi = $6000.00

Riverline Trav. (2b)

R4 & 5 → 3366 + 8000 + 8400 + 3000 + 5300 + 9040 + 7768 + 6000 + 11000 + 10560 + 7850 + 24325 + 15000 + 5750 + 22000 + 11900 + 20285 + 33008

Av. $9701 / 11.5mi $843/mi

Apache B. → 3000 + 3886 + 4296 + 5950 + 2300 + 4376 + 1760 + 7932 + 2500 + 13080 + 7370 + 7284 + 11450 + 1760 + 14475 + 6000 + 14000

Brushy

Av. 7193/5.1mi $1424/mi

USE $1200/mi x 1.8mi = $2160.00

Vehicle Survey (2d)

A&S 3623 + 2775 + 2100 + 3000 + 8800 + 4120 + 5440 + 4500 + 3000 + 2400 + 11800 + 5635 + 10000 + 3000 + 9200 + 8260 + 14550 + 3706.

Av = 5883/11.5mi = $512.00/mi

Apache B. 2000 + 2200 + 2108 + 2550 + 2450 + 2188 + 2820 + 2668 + 1000 + 2480 + 2415 + 3876 + 2350 + 2420 + 4500 + 3000 + 5000

Av. 2538/5. mi = $507/mi

USE $510/mi X 6mi = $3060.00

Cross Sections (2d)

Apache B. 3000 + 3700 + 6050 + 4050 + 3475 + 6720 + 2600 + 5500 + 7550 + 3050 6600 + 9628 + 9100 + 12720 + 4900 + 28600 + 20,000

≈ Av $5792/5.1mi = $1136/mi

USE $1200/mi X 1.8 = $2160.00

Drafting (A)

Apache B. 10980 + 10547 + 2000 + 6000 + 1200 + 7050 + 4000 + 2680 + 2210 + 2000 + 2800 + 2410 + 2000 + 5042 + 2750 + 2550 + 1950

≈ Av $2903/5.1mi $569/mi

USE $570/mi X 1.8mi = $1026

Row Grid (26)

Apache B. 2000 + 440 + 2000 + 2250 + 3600 + 1920 + 2000 + 3555 + 1000 + 3885 + 2160 + 2689 + 3500 + 3820 + 6300 + 3000 + 8000

Av = $2912/1.6 mi = $1821/mi

Use $2000/mi x 1.05 mi = $2100

Voucher Area! more of it/mi

Computer Tape (3)

Apache B. 300 + 250 + 1210 + 480 + 3300 + 300 + 2000 + 100 + 500 + 500 + 1150 + 230 + 1500 + 2000 + 500 + 2040 + 3000.

Av. $585/5.1 mi = $115/mi

$115/mi x 1.8 mi = $207

Total $16,713.00

+ (11) Mobilization 2500

$19,213.00

WEEKES WASH FRS

DEP 6-19-84

The following type of schedule shall be reviewed with the Geologist and State Conservation Engineer.

1. Design Survey
2. Hydrology review {Harry Milsaps latest run}
3. Preliminary Design {from design survey}
4. Review of Preliminary design (in house)
5. Geologists Alternatives {Part of in house review}
6. Stake project for Geology {Geologist recommendations}
7.) Geology work
8.) Final Design
9.) Land Rights work map.

Wickes Wash

DENNIS McCARTHY, STATE HISTORIC PRESERVATION OFFICER
STATE AND NATIONAL REGISTER OF HISTORIC PLACES

ARIZONA STATE PARKS

1688 WEST ADAMS STREET
PHOENIX, ARIZONA 85007
TELEPHONE 602-271-4174

RAUL H. CASTRO
GOVERNOR

DOROTHY H. HALL
HISTORIC SITES PRESERVATION OFFICER

MARJORIE H. WILSON
HISTORIAN

JAMES W. GARRISON
ARCHITECTUAL HISTORIAN

DENNIS McCARTHY
DIRECTOR

WALLACE VEGORS
DEPUTY DIRECTOR

January 28, 1976

Mr. George C. Marks
State Conservationist
Att: John Peterson
U.S. Dept. of Agriculture
Soil Conservation Service
111 West Monroe
Phoenix, Arizona

Re: Buckhorn Mesa Watershed Project

Dear Mr. Marks:

I have reviewed Archaeological Investigation at AZ U:10:51 (ASU), Maricopa Co. Arizona by James B. Rodgers. In view of the archaeological background consisting of four surveys, collection of prehistoric artifacts and excavation of the historic compoent Az U:10:3 (ASM) or "Area B" of Az U:10:51 (ASU) I concur with the recommendations made by Donald E. Weaver, Contract Archaeologist, Arizona State University. The site is not eligible for nomination to the National Register of Historic Places. In actual fact, the cultural resources have been displaced in the process of compliance with 36 C.R.R. Part 800, the "Procedures for the Protection of Historical and Cultural Properties."

There are no National Register sites within the area of the proposed project.

Sincerely,

Dorothy H. Hall
Alternate State Historic
Preservation Officer

DHH:ag

AN ARCHAEOLOGICAL RECONNAISSANCE SURVEY

OF

THE BUCKHORN-MESA FLOOD CONTROL PROJECT

by

Thomas R. Cartledge
and
Donald E. Weaver, Jr.
Department of Anthropology
Arizona State University

Submitted by:

Donald E. Weaver, Jr.
Principal Investigator
Department of Anthropology
Arizona State University
Tempe, Arizona

Prepared for:

Soil Conservation Service
U.S. Department of Agriculture
Phoenix, Arizona
Purchase Order No. 144-AZ-SCS-75

October, 1974

AN ARCHAEOLOGICAL RECONNAISSANCE SURVEY

OF

THE BUCKHORN-MESA FLOOD CONTROL PROJECT

Introduction

The Department of Anthropology, Arizona State University, at the request of and under contract with the Soil Conservation Service of the United States Department of Agriculture, Arizona State Office, Phoenix, undertook an archaeological reconnaissance survey of certain land areas 30 miles east of Phoenix which are to be impacted by the construction of five floodwater retarding structures (dams), their outlets, and three connecting floodways. The proposed dams have associated sediment pools and temporary retarding pools and thus the construction of the structures will affect more than simply the ground surface where each is to be located.

The Principal Investigator for the archaeological work was Donald E. Weaver, Jr., Department of Anthropology, Arizona State University, and the Field Archaeologist who conducted the actual survey was Thomas R. Cartledge. The archaeological survey field work was accomplished between October 8 and October 23, 1974, using supplies, materials, and a vehicle provided by the Department of Anthropology.

Research Objectives

The archaeological reconnaissance survey of the Buckhorn-Mesa Flood Control Project had three major objectives: (1) to record the presence of archaeological sites encountered within the area in question; (2) to evaluate the potential significance of all designated sites; and (3) to make recommendations concerning the preservation and/or salvage of such sites.

Location and Geographic Setting

The dams and floodways of the Buckhorn-Mesa Flood Control Project will be constructed as a roughly linear sequence of more or less contiguous structures just west of the Superstition Mountains and just south of the Goldfield and Usery Mountains, 30 miles east of Phoenix. The entire survey area is completely within the Lower Sonoran Life Zone (Lowe 1964: 17-20) and is characterized by paloverde-saguaro and creosote-bursage plant communities. The climate of the area is typical of the Sonoran Desert with rainfall averaging less than ten inches per year (Green and Sellers 1964: 255-258).

The nearest permanent water source to the survey area is the Salt River about seven miles to the north. Water in the survey area itself is available only during, and for a brief period following, thunderstorms. Such water is quickly carried away to the south and west by a series of desert washes which originate in the mountainous terrain to the north and east. As one approaches these mountains the topography becomes more rugged, the slope of the land increases, and the washes are more deeply incised. Moving away from the mountains the desert landscape becomes nearly level and the washes are entrenched only slightly below the surrounding land surface. Being somewhat more moist, the wash areas often support relatively lush stands of vegetation. Such concentrations of vegetation attracted prehistoric peoples who gathered the various seeds, nuts, and berries provided by these naturally occurring groups of plants. Consequently, archaeologists often find evidence of the activities of prehistoric man in the vicinity of desert washes.

The eastern most dam, Weeks Wash Dam, is located just west of the Apache Trail highway in T.1N., R.8E., Sections 1 and 2. About 2 miles southwest of the Weeks Wash Dam, the Apache Junction Dam is also located just west of the Apache Trail highway in Sections 8, 9, and 16 of T.1N., R.8E. From the western end of the Apache Junction Dam the Apache Junction Floodway extends to the west through Section 8. Near the section line between Sections 8 and 7 of T.1N., R.8E., but still in Section 8, the Apache Junction Floodway connects with the Bulldog Floodway which extends westward through Section 7 and into Section 12 of T.1N., R.7E. Immediately south of the western end of the Bulldog Floodway is the Signal Butte Dam, oriented in a roughly east-to-west direction. For the most part it is confined to Section 12. The Signal Butte Floodway takes off to the west from the western end of the Signal Butte Dam and passes through parts of Sections 12, 11, 14, 15, and 16 of T.1N., R.7E. From the west end of the Signal Butte Floodway the Spook Hill Dam extends to the northwest. It runs through parts of Sections 16, 8, 7, and 6 of T.1N., R.7E. Just north of McDowell Road the orientation of the dam becomes due north-to-south as it passes through parts of Sections 31, 30, and 19 of T.2N., R.7E. The Pass Mountain Dam runs east-to-west and extends through parts of Sections 1, 2, and 3 of T.1N., R.7E. From the east end of the dam the Pass Mountain Dam Outlet runs due south through parts of Sections 1 and 12 of the same township and range.

Field Procedures

All actual survey work was conducted on foot beginning with Weeks Wash Dam and working generally to the west. Detailed maps supplied by the Soil Conservation Service were used to accurately locate the proposed construction localities. Each dam and floodway structure was treated as a separate unit for archaeological survey purposes. In linear terms there were, altogether, some 15 miles of territory to

be surveyed. The floodways and dam outlets are linear structures with 100 feet of right-of-way to either side. With these structures the survey procedure consisted of making traverses up one side of the Soil Conservation Service stake line and down the other. The dams have associated sediment pools and temporary retarding pools behind them and the land parcel to be surveyed includes a relatively large area. Every dam is more than 3/4 miles in length and their pool areas are often hundreds of yards wide. Each area was surveyed by means of a series of foot transects generally running parallel to the long axis of the construction area. Given their more extensive nature, general coverage of the dam locations was less intensive than that given to the floodways and dam outlets. However, within the dam and pool units, special attention was given to areas adjacent to major washes by walking up and down both sides of each major wash found in each area. This procedure increased the possibility of locating archaeological sites along the washes, areas generally more heavily utilized by prehistoric people.

Results

The results of the survey are presented below for each construction locality. It should be noted that site designations were only assigned to those loci for which additional investigation seemed warranted or from which specific cultural activities could be reconstructed. Isolated artifacts were not given site designations.

Weeks Wash Dam: The survey of this area disclosed no prehistoric archaeological sites. There is, however, considerable evidence of mining in the area and some of it may relate to the early historic period. A few scattered pottery fragments (sherds) and stone tools were found, indicating occasional use by prehistoric people.

Apache Junction Dam: Despite the fact that sherds have been reported from this general area, none were found during the present survey. A few scattered stone tools were noted but no sites were designated.

Apache Junction Dam Outlet: The survey of this area disclosed no prehistoric materials or evidence of prehistoric land modification.

Bulldog Floodway: The survey of this area produced no prehistoric materials or evidence of prehistoric land modification.

Signal Butte Dam: The survey of this area disclosed no prehistoric materials or evidence of prehistoric land modification.

Signal Butte Floodway: The survey of this area produced occasional isolated sherds, but no sites were designated.

Spook Hill Dam: For its entire length the Spook Hill Dam is closely paralleled by an aqueduct of the Central Arizona Project, a distance of about 5.5 miles. In 1969 an archaeological survey was conducted by the Department of Anthropology, Arizona State University, along this portion of the CAP aqueduct (Dittert, Fish, and Simonis 1969). On that survey two archaeological sites were located in Section 31 of T.2N., R.7E., very near the CAP aqueduct and, hence, very near the Spook Hill Dam right-of-way.

One of the sites, designated AZ U:10:49 (ASU), covered a large area (most of the west $\frac{1}{2}$ of Section 31) just southwest of Spook Hill. The site consisted of widely scattered isolated sherds and stone tools (Domeier 1972). In the site evaluation it was recommended that no additional work was necessary at the site. The present survey found a few more artifacts in the same general area but the previous recommendation is considered still valid.

The second site, AZ U:10:51 (ASU), is located within the Spook Hill Dam right-of-way survey line about 330 feet north of McDowell Road (SW$\frac{1}{4}$, SW$\frac{1}{4}$ of Section 31). In the 1969 survey over 100 sherds were recovered at the site in a relatively small area (Dittert, Fish, and Simonis 1969: 5). In the evaluation of the site at that time no excavations were recommended. In 1972, as the result of a course in archaeological survey techniques in the same general area, AZ U:10:51 (ASU) was relocated and more sherds and stone tools were collected (Domeier 1972). During the present survey AZ U:10:51 (ASU) was again relocated and more material was recovered. Additionally, a rock outlined foundation for some kind of structure was added to the list of remains at the site. A more thorough search of the immediately adjacent area would probably turn up additional material.

An archaeological survey conducted by the Arizona State Museum for the aqueduct associated with the Central Arizona Project (Grady 1973) recorded one prehistoric site near the Spook Hill Dam. The site, a small sherd and stone tool scatter, was not relocated during the present survey since it lies outside the Spook Hill Dam right-of-way. In addition, a few isolated artifacts were recovered in the Spook Hill Dam area as a result of the same survey. These results are very similar to the results of the present survey and support the concept of a relatively uniform prehistoric utilization in the Spook Hill area.

Pass Mountain Dam: Previous survey in the Pass Mountain Dam area established the location of two archaeological sites, AZ U:10:44 (ASU) (SE$\frac{1}{4}$, SE$\frac{1}{4}$ of Section 2, T.1N., R.7E.) and AZ U:10:45 (ASU) (SW$\frac{1}{4}$, SW$\frac{1}{4}$ of Section 1, T.1N., R.7E.), near the eastern end of the dam. The sites consisted only of small scatters of sherds and no additional investigation was recommended (Domeier 1972). No additional materials were found at the two site locations during the present survey and the previous recommendation still stands. Survey of the remainder of the area yielded only two isolated stone tools with no other sites being designated.

Pass Mountain Dam Outlet: The survey of this area disclosed no prehistoric materials or evidence of prehistoric land modification.

Conclusions

The archaeological materials recorded during this survey indicate that the area under investigation was never heavily utilized by prehistoric groups. Isolated artifacts and small concentrations of artifacts were probably the result of seasonal hunting and gathering activities. Such activities were probably primarily related to the harvesting of wild plant materials, with little indication of processing. Water availability was evidently not an important factor in activity location.

Cultural affiliation and period of occupation are difficult to evaluate because of the relatively few diagnostic artifacts recovered. Ceramic and lithic materials seem to be most similar to Hohokam artifacts and may indicate close ties to the large permanent Hohokam settlements along the Salt River to the north of the research area. The area was probably utilized most heavily during the Sedentary and Classic Periods, between A.D. 900 and 1450.

The significance of the archaeological data recovered during this survey relates primarily to the formulation of an economic subsistence model for the Hohokam cultural tradition. Although inadequate in itself, the data, when used in conjunction with data from surrounding areas, does provide evidence to support previously formulated hypotheses. In particular, the data suggests considerable reliance on seasonal hunting and gathering by sedentary Hohokam agriculturalists. AZ U:10:51 (ASU) assumes considerable significance since it is the only site recorded within the research area which has the potential for producing definite evidence about cultural affiliation and period of occupation.

Recommendations

Although all archaeological resources possess a measure of significance, it is the opinion of the authors that further investigation of sites recorded or investigated during this survey is only warranted for AZ U:10:51 (ASU). The immediately surrounding area should be intensively surveyed to determine the extent and concentration of cultural material. Test excavations should be conducted to determine if sub-surface cultural deposits exist. The rock outline discussed previously should also be excavated to determine whether it is historic or prehistoric. If test excavations warrant, additional intensive investigation should be undertaken in areas with concentrations of cultural material. The time required to complete the recommended

investigations should not exceed five field days with a crew of three workers. The total time involved from initiation of the project to submission of the final report should not exceed two months. The use of heavy equipment, such as a road grader, to strip large areas of surface soil would greatly expedite work but is not absolutely necessary. A suggested budget is presented in this report.

It should be noted that these recommendations are based on a reconnaissance survey only and should not be extended beyond their applicability. In addition, the proposed budget is only tentative and is based upon minimum costs as of November 1, 1974. Only when a specific request to perform defined archaeological investigations is involved can a detailed and specific proposal be drafted and submitted to the contracting agency.

None of the sites investigated during this survey appear, in the opinion of the authors, to qualify for inclusion in either the Arizona or Federal Register of Historic Places. None of the sites are being recommended for such nominations.

Proposed Budget for Archaeological Investigations

at AZ U:10:51 (ASU)

Supervisor Archaeologist (5 field days and 5 report preparation days)	10 w-d @ $5.00/hr.	$ 400.00
Field Archaeologists (2) (5 field days each)	10 w-d @ $3.00/hr.	240.00
Draftsman	1 w-d @ $3.00/hr.	24.00
Typist	1 w-d @ $2.50/hr.	20.00
	22 w-d	$ 684.00
Employee Benefits:		70.00
Travel: 450 miles @ $0.18/mile		81.00
Supplies:		25.00
Professional Services: (pollen analysis, radiocarbon dating, etc.)		250.00
Report Preparation: (xeroxing, reproduction)		50.00
	Total	$ 1160.00
Administrative Overhead: (54% of total direct cost)		$ 630.00
	Grand Total	$ 1790.00

Note: The abbreviation w-d stands for worker days.

References Cited

Dittert, A.E., Jr., P.R. Fish, and D.E. Simonis
1969 A Cultural Inventory of the Proposed Granite Reef and Salt-Gila Aqueducts, Agua Fria River to Gila River, Arizona. Arizona State University Department of Anthropology Research Paper, No. 1, Tempe.

Domeier, B.
1972 Untitled manuscript. Department of Anthropology, Arizona State University, Tempe.

Grady, Mark
1973 An Archaeological Survey of the Salt-Gila Aqueduct. Arizona State Museum, Tucson.

Green, C.R. and W.D. Sellers
1964 Arizona Climate. University of Arizona Press, Tucson.

Lowe, C.H., ed.
1964 The Vertebrates of Arizona. University of Arizona Press, Tucson.

WEEKS WASH FRS (DES/TR20.WWSH)
DESIGN HYDROLOGY

Storm No.

1. PSH
2. 2-YEAR, 24-Hour
3. 10-YEAR, 24-Hour
4. 100-YEAR, 24-Hour
5. ESH, 24-Hour
6. FBH, 24-Hour
7. ESH, 6-Hour
8. FBH, 6-Hour

Note!!

1. The 100-YEAR, 24-Hour STORM Controls the MINIMUM Elev of EMER. SPY Crest, And the 6-Hour ESH & FBH Should Be used to Proportion the EMER SPY & set the MINIMUM TOP OF DAM.

*********TABLE TYPE 3 HAS BEEN REPLACED FOR THIS RUN.

EXECUTIVE CONTROL CARD 85 OPERATION LIST

LISTING OF DATA IN CORE

0 WEEKS WASH FRS DESIGN HYDROLOGY

VELOCITY INCREMENT

1 CTABLE .2000

8	.0000	.0800	.1800	.2500	.3200
8	.3700	.4100	.4500	.4900	.5100
8	.5400	.5700	.5900	.6100	.6300
8	.6500	.6600	.6700	.6900	.7000
8	.7100	.7200	.7300	.7400	.7500
8	.7600	.7700	.7700	.7800	.7900
8	.7900	.8000	.8100	.8100	.8200
8	.8200	.8300	.8300	.8400	.8400
8	.8400	.8500	.8500	.8600	.8600
8	.8600	.8600	.8700	.8700	.8700
8	.8800	.8800	.8800	.8900	.8900
8	.8900	.8900	.8900	.8900	.9000
8	.9000	.9000	.9000	.9000	.9100
8	.9100	.9100	.9100	.9100	.9100
8	.9200	.9200	.9200	.9200	.9200
8	.9200	.9200	.9200	.9300	.9300

9 ENDTBL

STRUCT NO.

3 STRUCT 7

	ELEVATION	DISCHARGE	STORAGE
8	1967.0000	.0000	.0000
8	1967.5000	16.0000	16.2000
8	1968.0000	46.0000	32.5000
8	1968.5000	87.0000	49.7000
8	1969.0000	88.0000	65.0000
8	1970.5000	91.0000	129.3000
8	1972.1000	94.0000	212.9000
8	1975.2000	100.0000	421.9000
8	1976.7000	103.0000	545.9000
8	1977.8000	105.0000	641.5000
8	1978.3000	106.0000	686.7000
8	1978.8000	106.0000	734.3000
8	1979.3000	107.0000	789.7000
8	1979.8000	108.0000	830.1000
8	1984.5000	1293.0000	1357.7000
8	1987.6000	5512.0000	1774.1000
8	1990.7000	12053.0000	2243.6000
8	1996.9000	31953.0000	3357.8000

```
8                    2000.0000  45388.0000   4029.1000
9 ENDTBL

                 TIME INCREMENT
4 DIMHYD
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 PEAK K FACTOR =  484.00

                 TIME INCREMENT
5 RAINFL 1                .5000
8              .0000      .0080      .0170      .0260      .0350
8              .0450      .0550      .0650      .0760      .0870
8              .0990      .1120      .1250      .1400      .1560
8              .1740      .1940      .2190      .2540      .3030
8              .5150      .5830      .6240      .6540      .6820
8              .7050      .7270      .7480      .7670      .7840
8              .8000      .8160      .8300      .8440      .8570
8              .8700      .8820      .8930      .9050      .9160
8              .9260      .9360      .9460      .9550      .9650
8              .9740      .9830      .9920     1.0000     1.0000
9 ENDTBL

                 TIME INCREMENT
5 RAINFL 2                .5000
8              .0000      .0050      .0110      .0160      .0220
8              .0280      .0350      .0410      .0480      .0560
8              .0630      .0710      .0800      .0890      .0980
8              .1090      .1200      .1330      .1470      .1630
8              .1810      .2040      .2350      .2830      .6630
8              .7350      .7720      .7990      .8200      .8380
8              .8540      .8680      .8800      .8910      .9020
8              .9120      .9210      .9290      .9370      .9450
8              .9520      .9590      .9650      .9720      .9780
8              .9840      .9890      .9950     1.0000     1.0000
9 ENDTBL

                 TIME INCREMENT
```

TYPE I, 24-Hour

TYPE II, 24-Hour

PSH MAS Runoff

```
5 RAINFL 3                    2.4000

8                .0000        .0020        .0040        .0059        .0079
8                .0099        .0121        .0142        .0164        .0185
8                .0207        .0231        .0255        .0280        .0304
8                .0328        .0355        .0382        .0410        .0437
8                .0464        .0495        .0526        .0558        .0589
8                .0620        .0657        .0695        .0732        .0770
8                .0807        .0853        .0899        .0946        .0992
8                .1038        .1101        .1164        .1226        .1289
8                .1352        .1454        .1556        .1657        .1759
8                .1861        .1999        .2171        .2404        .2782
8                .7041        .7625        .7911        .8108        .8261
8                .8357        .8440        .8523        .8607        .8690
8                .8773        .8826        .8879        .8932        .8985
8                .9038        .9079        .9121        .9162        .9204
8                .9245        .9279        .9313        .9347        .9381
8                .9415        .9444        .9473        .9502        .9531
8                .9560        .9586        .9611        .9637        .9662
8                .9688        .9711        .9734        .9756        .9779
8                .9802        .9823        .9843        .9864        .9884
8                .9905        .9929        .9952        .9976       1.0000
9 ENDTBL
```

6-Hour ESH + FBH
HMR-49

```
                TIME INCREMENT
5 RAINFL 4                    .2500

8                .0000        .0060        .0127        .0194        .0261
8                .0402        .0544        .0693        .0886        .5745
8                .7042        .7623        .8145        .8547        .8883
8                .9218        .9359        .9471        .9583        .9672
8                .9769        .9836        .9897        .9948       1.0000
9 ENDTBL
```

24-Hour, ESH + FBH
HMR-43 + 49

```
                TIME INCREMENT
5 RAINFL 5                    .5000

8                .0000        .0040        .0080        .0110        .0160
8                .0210        .0270        .0340        .0440        .0550
8                .0700        .0880        .1080        .1370        .1720
8                .2170        .2730        .3410        .4200        .4920
8                .5600        .6180        .6720        .7190        .7530
8                .7820        .8070        .8270        .8450        .8600
8                .8730        .8850        .8950        .9030        .9130
8                .9210        .9300        .9350        .9420        .9490
8                .9540        .9600        .9670        .9720        .9780
8                .9820        .9890        .9930       1.0000       1.0000
9 ENDTBL
```

STANDARD CONTROL INSTRUCTIONS

```
6 RUNOFF 1  15        6      1.7200    100.0000      .30001 0 0 1 0 1
6 REACH  3 114    6   5   2700.0000       .8000      .00000 0 0 0 0 0
6 RUNOFF 1  14        6      1.5500    100.0000      .25001 0 0 1 0 1
6 ADDHYD 4  14    5 6 7                                  1 0 0 1 0 1
6 SAVMOV 5  14    7   5
6 RUNOFF 1  16        6      2.2400    100.0000      .59001 0 0 1 0 1
6 ADDHYD 4 114    5 6 7                                  1 0 0 1 0 1
6 REACH  3 113    7   5   4300.0000       .8000      .00000 0 0 0 0 0
6 RUNOFF 1  13        6      1.3500    100.0000      .21001 0 0 1 0 1
6 ADDHYD 4  13    5 6 7                                  1 0 0 1 0 1
6 REACH  3 112    7   5   4600.0000       .8000      .00000 0 0 0 0 0
6 RUNOFF 1  12        6      1.4300    100.0000      .45001 0 0 1 0 1
6 ADDHYD 4  12    5 6 7                                  1 0 0 1 0 1
6 REACH  3 111    7   5   1800.0000       .8000      .00000 0 0 0 0 0
6 RUNOFF 1  11        6       .6300    100.0000      .31001 0 0 1 0 1
6 ADDHYD 4 111    5 6 7                                  1 0 0 1 0 1
6 SAVMOV 5 111    7   5
6 RUNOFF 1  17        6       .2100    100.0000      .23001 0 0 1 0 1
6 ADDHYD 4 117    5 6 7                                  1 1 0 1 0 1
6 SAVMOV 5 117    7   6
6 RESVOR 2      7 6   7   1967.0000                     1 1 1 1 0 1
  ENDATA
```

Note, CN=100 was used for all areas since a mass runoff curve for the PSH was used as RAIN TABLE No. 3

END OF LISTING

P 5H

PASS= 1

EXECUTIVE CONTROL CARD 86 OPERATION INCREM, MAIN TIME INCREMENT= 1.00
EXECUTIVE CONTROL CARD 87 OPERATION COMPUT, FROM XSECTN/STRUCT 15/ 0 TO XSECTN/STRUCT 0/ 7
STARTING TIME= .00 RAIN DEPTH= 2.85 RAIN DURATION= 1.00 RAIN TABLE NO.= 3 SOIL CONDITION= 2
ALTERNATE NO.= 1 STORM NO.= 1

10-Day Runoff

SUBROUTINE RUNOFF CROSS SECTION 15
AREA= 1.72 INPUT RUNOFF CURVE= 100.0 TIME OF CONCENTRATION= .30

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
68.50	5.014	(RUNOFF)
78.50	6.200	(RUNOFF)
87.50	8.296	(RUNOFF)
99.50	13.428	(RUNOFF)
119.45	566.909	(RUNOFF)
126.50	26.640	(RUNOFF)
138.50	11.068	(RUNOFF)
154.49	6.974	(RUNOFF)
159.55	5.532	(RUNOFF)
164.50	5.540	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.9145 CFS-HRS= 3235.21 ACRE-FT= 267.36

SUBROUTINE REACH CROSS SECTION 114
LENGTH= 2700.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .09

SUBROUTINE RUNOFF CROSS SECTION 14
AREA= 1.55 INPUT RUNOFF CURVE= 100.0 TIME OF CONCENTRATION= .25

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
78.50	5.587	(RUNOFF)
87.50	7.478	(RUNOFF)
99.50	12.102	(RUNOFF)
119.48	508.359	(RUNOFF)
126.50	24.009	(RUNOFF)
138.50	9.974	(RUNOFF)
143.50	10.282	(RUNOFF)
155.50	6.460	(RUNOFF)
159.51	4.988	(RUNOFF)
164.50	4.994	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.9322 CFS-HRS= 2933.17 ACRE-FT= 242.40

SUBROUTINE ADDHYD CROSS SECTION 14
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
63.61	9.515	(NULL)
68.55	9.528	(NULL)
78.53	11.784	(NULL)
87.50	15.774	(NULL)

99.50	25.529	(NULL)
119.50	1170.541	(NULL)
138.53	21.039	(NULL)
154.49	13.259	(NULL)
159.61	10.516	(NULL)
164.55	10.529	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.9367 CFS-HRS= 6197.40 ACRE-FT= 512.15

SUBROUTINE SAVMOV CROSS SECTION 14
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 16
AREA= 2.24 INPUT RUNOFF CURVE= 100.0 TIME OF CONCENTRATION= .59

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
64.16	6.512	(RUNOFF)
68.70	6.516	(RUNOFF)
78.52	8.071	(RUNOFF)
87.50	10.797	(RUNOFF)
99.50	17.480	(RUNOFF)
119.50	799.154	(RUNOFF)
138.52	14.411	(RUNOFF)
154.50	9.083	(RUNOFF)
160.17	7.197	(RUNOFF)
164.70	7.201	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.8212 CFS-HRS= 4078.46 ACRE-FT= 337.04

SUBROUTINE ADDHYD CROSS SECTION 114
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
63.78	16.020	(NULL)
68.60	16.043	(NULL)
78.53	19.855	(NULL)
87.50	26.571	(NULL)
99.50	43.009	(NULL)
119.50	1969.695	(NULL)
138.53	35.450	(NULL)
154.50	22.342	(NULL)
159.79	17.706	(NULL)
164.60	17.729	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.8903 CFS-HRS= 10277.75 ACRE-FT= 849.35

SUBROUTINE REACH CROSS SECTION 113
LENGTH= 4300.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .14

SUBROUTINE RUNOFF CROSS SECTION 13

AREA= 1.35 INPUT RUNOFF CURVE= 100.0 TIME OF CONCENTRATION= .21

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
78.50	4.866	(RUNOFF)
87.50	6.515	(RUNOFF)
99.50	10.542	(RUNOFF)
119.33	440.590	(RUNOFF)
128.50	16.514	(RUNOFF)
138.50	8.687	(RUNOFF)
143.50	8.955	(RUNOFF)
154.50	5.474	(RUNOFF)
159.50	4.346	(RUNOFF)
164.50	4.350	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.9397 CFS-HRS= 2561.23 ACRE-FT= 211.66

SUBROUTINE ADDHYD CROSS SECTION 13
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
63.85	19.935	(NULL)
68.69	19.957	(NULL)
78.60	24.701	(NULL)
87.50	33.084	(NULL)
99.50	53.549	(NULL)
119.54	2404.896	(NULL)
138.60	44.117	(NULL)
154.50	27.815	(NULL)
159.85	22.034	(NULL)
164.69	22.056	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.9228 CFS-HRS= 12939.87 ACRE-FT= 1069.35

SUBROUTINE REACH CROSS SECTION 112
LENGTH= 4600.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .15

SUBROUTINE RUNOFF CROSS SECTION 12
AREA= 1.43 INPUT RUNOFF CURVE= 100.0 TIME OF CONCENTRATION= .45

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
68.56	4.164	(RUNOFF)
78.50	5.154	(RUNOFF)
87.50	6.894	(RUNOFF)
99.50	11.161	(RUNOFF)
119.48	483.201	(RUNOFF)
138.50	9.202	(RUNOFF)
142.50	9.082	(RUNOFF)
154.49	5.798	(RUNOFF)
159.86	4.595	(RUNOFF)
164.56	4.602	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.8598 CFS-HRS= 2639.24 ACRE-FT= 218.11

SUBROUTINE ADDHYD CROSS SECTION 12
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
63.99	24.073	(NULL)
68.78	24.092	(NULL)
78.65	29.830	(NULL)
87.54	39.972	(NULL)
99.58	64.700	(NULL)
119.58	2850.530	(NULL)
138.65	53.293	(NULL)
154.50	33.613	(NULL)
159.98	26.610	(NULL)
164.78	26.629	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.9339 CFS-HRS= 15696.87 ACRE-FT= 1297.19

SUBROUTINE REACH CROSS SECTION 111
LENGTH= 1800.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .06

SUBROUTINE RUNOFF CROSS SECTION 11
AREA= .63 INPUT RUNOFF CURVE= 100.0 TIME OF CONCENTRATION= .31

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
68.51	1.836	(RUNOFF)
78.50	2.271	(RUNOFF)
87.50	3.039	(RUNOFF)
99.50	4.918	(RUNOFF)
119.49	208.178	(RUNOFF)
138.50	4.054	(RUNOFF)
142.50	4.001	(RUNOFF)
155.49	2.624	(RUNOFF)
159.56	2.026	(RUNOFF)
164.51	2.029	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.9127 CFS-HRS= 1184.24 ACRE-FT= 97.87

SUBROUTINE ADDHYD CROSS SECTION 111
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
64.02	25.895	(NULL)
68.80	25.914	(NULL)
78.67	32.088	(NULL)
87.59	43.004	(NULL)
99.69	69.609	(NULL)
119.59	3042.561	(NULL)
138.67	57.335	(NULL)
154.50	36.168	(NULL)
159.99	28.625	(NULL)

164.80 28.643 (NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.9398 CFS-HRS= 16923.34 ACRE-FT= 1398.54

SUBROUTINE SAVMOV CROSS SECTION 111
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 17
AREA= .21 INPUT RUNOFF CURVE= 100.0 TIME OF CONCENTRATION= .23

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
68.50	.612	(RUNOFF)
78.50	.757	(RUNOFF)
87.50	1.013	(RUNOFF)
99.50	1.640	(RUNOFF)
119.37	68.637	(RUNOFF)
138.50	1.351	(RUNOFF)
143.50	1.392	(RUNOFF)
155.49	.875	(RUNOFF)
159.51	.676	(RUNOFF)
164.50	.677	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.9355 CFS-HRS= 397.83 ACRE-FT= 32.88

SUBROUTINE ADDHYD CROSS SECTION 117 (This Hyd. Can be used in Dams 2) 100-yr, 24-hour conditions
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 78

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
64.01	26.506	(NULL)
68.79	26.525	(NULL)
78.66	32.845	(NULL)
87.59	44.018	(NULL)
99.68	71.248	(NULL)
119.59	3117.782	(NULL)
138.66	58.686	(NULL)
154.50	37.019	(NULL)
159.98	29.299	(NULL)
164.79	29.319	(NULL)

HYDROGRAPH, TZERO= .00 DELTA T= 1.00 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	10.48	13.53	13.94	13.97	13.76	13.38	13.28	13.78	13.94
10.00	DISCHG	13.97	13.97	13.97	15.02	15.32	14.88	14.70	14.88	15.25	15.35
20.00	DISCHG	14.85	14.69	15.08	15.31	15.36	16.41	16.72	16.76	16.76	16.97
30.00	DISCHG	17.35	17.45	16.95	16.79	16.76	16.76	16.77	18.33	18.79	18.85
40.00	DISCHG	18.86	19.07	19.44	19.54	19.04	18.88	18.86	18.86	18.87	20.96
50.00	DISCHG	21.56	21.65	21.65	21.86	22.24	22.34	21.83	21.68	21.65	21.65
60.00	DISCHG	21.66	24.80	25.71	26.32	26.51	26.33	25.95	25.85	26.35	26.51
70.00	DISCHG	26.13	25.90	25.86	30.56	31.93	32.12	32.13	32.34	32.71	32.81
80.00	DISCHG	32.31	32.15	32.13	32.13	32.17	41.05	43.63	43.98	44.00	43.79
90.00	DISCHG	43.41	43.31	43.81	43.97	44.00	44.00	44.10	64.46	70.39	71.19
100.00	DISCHG	71.24	71.03	70.65	70.55	71.05	71.21	71.23	71.24	71.27	90.11
110.00	DISCHG	95.60	112.82	118.97	132.81	155.93	161.92	237.15	260.36	1843.39	2756.91
120.00	DISCHG	2941.79	1044.87	487.43	267.72	209.84	182.03	147.56	138.77	115.06	107.96
130.00	DISCHG	83.68	70.23	67.35	60.24	58.25	57.98	57.97	58.18	58.55	58.65

140.00	DISCHG	58.15	57.99	57.97	57.97	57.91	42.23	37.67	37.05	37.02	37.01
150.00	DISCHG	37.01	37.01	37.01	37.01	37.01	37.01	36.98	30.72	28.89	29.13
160.00	DISCHG	29.30	29.12	28.75	28.65	29.15	29.31	28.92	28.69	28.63	24.96
170.00	DISCHG	23.90	23.75	23.75	23.75	23.75	23.75	23.75	23.75	23.75	23.75
180.00	DISCHG	23.74	21.12	20.36	20.26	20.25	20.25	20.25	20.25	20.25	20.25
190.00	DISCHG	20.25	20.25	20.25	18.68	18.22	17.68	17.49	17.67	18.05	18.14
200.00	DISCHG	17.64	17.49	17.87	18.10	18.15	16.58	16.13	16.07	16.06	15.85
210.00	DISCHG	15.48	15.38	15.88	16.04	16.06	16.06	16.06	15.01	14.71	14.18
220.00	DISCHG	14.00	14.18	14.55	14.65	14.15	13.99	14.38	14.61	14.67	16.24
230.00	DISCHG	16.70	16.27	16.10	16.28	16.65	16.75	16.76	16.76	15.58	8.79
240.00	DISCHG	.00									

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.9397 CFS-HRS= 17321.30 ACRE-FT= 1431.43

SUBROUTINE SAVMOV CROSS SECTION 117
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

SUBROUTINE RESVOR STRUCTURE 7
SURFACE ELEVATION= 1967.00

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
128.23	116.394	1979.83
158.50	106.003	1978.80

HYDROGRAPH, TZERO= .00 DELTA T= 1.00 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.41	1.32	2.29	3.21	4.04	4.79	5.46	6.09	6.70
.00	ELEV	1967.00	1967.01	1967.04	1967.07	1967.10	1967.13	1967.15	1967.17	1967.19	1967.21
10.00	DISCHG	7.27	7.80	8.28	8.77	9.27	9.73	10.12	10.49	10.85	11.20
10.00	ELEV	1967.23	1967.24	1967.26	1967.27	1967.29	1967.30	1967.32	1967.33	1967.34	1967.35
20.00	DISCHG	11.50	11.76	12.01	12.26	12.50	12.76	13.06	13.35	13.62	13.87
20.00	ELEV	1967.36	1967.37	1967.38	1967.38	1967.39	1967.40	1967.41	1967.42	1967.43	1967.43
30.00	DISCHG	14.13	14.39	14.61	14.78	14.94	15.08	15.21	15.40	15.65	15.90
30.00	ELEV	1967.44	1967.45	1967.46	1967.46	1967.47	1967.47	1967.48	1967.48	1967.49	1967.50
40.00	DISCHG	16.23	16.62	16.99	17.34	17.62	17.81	17.96	18.09	18.20	18.44
40.00	ELEV	1967.50	1967.51	1967.52	1967.52	1967.53	1967.53	1967.53	1967.53	1967.54	1967.54
50.00	DISCHG	18.84	19.23	19.57	19.88	20.19	20.48	20.71	20.86	20.97	21.07
50.00	ELEV	1967.55	1967.55	1967.56	1967.56	1967.57	1967.57	1967.58	1967.58	1967.58	1967.58
60.00	DISCHG	21.15	21.44	21.98	22.55	23.10	23.57	23.93	24.21	24.48	24.75
60.00	ELEV	1967.59	1967.59	1967.60	1967.61	1967.62	1967.63	1967.63	1967.64	1967.64	1967.65
70.00	DISCHG	24.98	25.12	25.23	25.65	26.44	27.23	27.92	28.53	29.10	29.61
70.00	ELEV	1967.65	1967.65	1967.65	1967.66	1967.67	1967.69	1967.70	1967.71	1967.72	1967.73
80.00	DISCHG	30.03	30.34	30.60	30.81	31.00	31.79	33.28	34.77	36.07	37.18
80.00	ELEV	1967.73	1967.74	1967.74	1967.75	1967.75	1967.76	1967.79	1967.81	1967.83	1967.85
90.00	DISCHG	38.09	38.83	39.50	40.12	40.67	41.14	41.55	43.35	46.96	51.23
90.00	ELEV	1967.87	1967.88	1967.89	1967.90	1967.91	1967.92	1967.93	1967.96	1968.01	1968.06
100.00	DISCHG	54.81	57.74	60.09	61.97	63.56	64.92	66.05	66.98	67.74	70.07
100.00	ELEV	1968.11	1968.14	1968.17	1968.19	1968.21	1968.23	1968.24	1968.26	1968.27	1968.29
110.00	DISCHG	74.15	79.54	86.06	87.19	87.49	87.88	88.34	88.96	92.28	97.86
110.00	ELEV	1968.34	1968.41	1968.49	1968.59	1968.75	1968.94	1969.17	1969.48	1971.18	1974.09
120.00	DISCHG	103.60	106.00	106.92	107.44	107.71	107.89	108.21	114.15	116.32	115.50
120.00	ELEV	1977.03	1978.30	1979.26	1979.52	1979.65	1979.74	1979.80	1979.82	1979.83	1979.83
130.00	DISCHG	112.16	107.98	107.90	107.81	107.71	107.61	107.51	107.40	107.30	107.21
130.00	ELEV	1979.82	1979.79	1979.75	1979.70	1979.65	1979.60	1979.55	1979.50	1979.45	1979.40
140.00	DISCHG	107.11	107.01	106.93	106.86	106.78	106.70	106.60	106.50	106.39	106.29
140.00	ELEV	1979.35	1979.30	1979.27	1979.23	1979.19	1979.15	1979.10	1979.05	1979.00	1978.95

150.00	DISCHG	106.19	106.08	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00
150.00	ELEV	1978.89	1978.84	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30
160.00	DISCHG	105.97	105.83	105.69	105.55	105.41	105.27	105.13	104.99	104.86	104.73
160.00	ELEV	1978.29	1978.22	1978.15	1978.08	1978.01	1977.94	1977.87	1977.80	1977.72	1977.65
170.00	DISCHG	104.59	104.45	104.31	104.17	104.03	103.89	103.75	103.62	103.48	103.34
170.00	ELEV	1977.57	1977.50	1977.42	1977.34	1977.27	1977.19	1977.12	1977.04	1976.96	1976.89
180.00	DISCHG	103.20	103.06	102.91	102.74	102.58	102.42	102.25	102.09	101.92	101.76
180.00	ELEV	1976.81	1976.74	1976.65	1976.57	1976.49	1976.41	1976.33	1976.24	1976.16	1976.08
190.00	DISCHG	101.60	101.44	101.27	101.11	100.94	100.78	100.61	100.45	100.28	100.12
190.00	ELEV	1976.00	1975.92	1975.84	1975.75	1975.67	1975.59	1975.51	1975.42	1975.34	1975.26
200.00	DISCHG	99.94	99.75	99.56	99.36	99.17	98.98	98.78	98.58	98.39	98.19
200.00	ELEV	1975.17	1975.07	1974.97	1974.87	1974.77	1974.67	1974.57	1974.47	1974.37	1974.27
210.00	DISCHG	98.00	97.80	97.61	97.41	97.22	97.03	96.84	96.64	96.45	96.26
210.00	ELEV	1974.17	1974.06	1973.96	1973.86	1973.76	1973.66	1973.57	1973.47	1973.37	1973.27
220.00	DISCHG	96.06	95.87	95.67	95.48	95.29	95.10	94.90	94.71	94.52	94.34
220.00	ELEV	1973.16	1973.06	1972.96	1972.87	1972.77	1972.67	1972.57	1972.47	1972.37	1972.27
230.00	DISCHG	94.15	93.96	93.73	93.50	93.27	93.05	92.82	92.59	92.37	92.13
230.00	ELEV	1972.18	1972.08	1971.96	1971.83	1971.71	1971.59	1971.47	1971.35	1971.23	1971.10
240.00	DISCHG	91.87	91.60	91.33	91.06	90.72	90.38	90.03	89.68	89.34	88.99
240.00	ELEV	1970.96	1970.82	1970.67	1970.53	1970.36	1970.19	1970.01	1969.84	1969.67	1969.50
250.00	DISCHG	88.65	88.31	87.96	87.48	87.01	71.75	58.88	48.32	41.00	35.20
250.00	ELEV	1969.32	1969.15	1968.98	1968.74	1968.51	1968.31	1968.16	1968.03	1967.92	1967.82
260.00	DISCHG	30.23	25.96	22.29	19.14	16.43	14.95	13.78	12.70	11.70	10.78
260.00	ELEV	1967.74	1967.67	1967.60	1967.55	1967.51	1967.47	1967.43	1967.40	1967.37	1967.34
270.00	DISCHG	9.94	9.16	8.44	7.78	7.17	6.61	6.09	5.61	5.17	4.77
270.00	ELEV	1967.31	1967.29	1967.26	1967.24	1967.22	1967.21	1967.19	1967.18	1967.16	1967.15
280.00	DISCHG	4.39	4.05	3.73	3.44	3.17	2.92	2.69	2.48	2.28	2.11
280.00	ELEV	1967.14	1967.13	1967.12	1967.11	1967.10	1967.09	1967.08	1967.08	1967.07	1967.07
290.00	DISCHG	1.94	1.79	1.65	1.52	1.40	1.29	1.19	1.10	1.01	.93
290.00	ELEV	1967.06	1967.06	1967.05	1967.05	1967.04	1967.04	1967.04	1967.03	1967.03	1967.03

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 3.0038 CFS-HRS= 17699.03 ACRE-FT= 1462.65

ENDCMP

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CHANGES TO STANDARD CONTROL LIST FOLLOW
EXECUTIVE CONTROL CARD        89  OPERATION  ALTER

  STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,      CROSS-SECTION=  15      STRUCTURE=  0
  IN1 HYD=0      IN2 HYD=0      OUT HYD=6      DATA FIELDS=          1.7200      80.0000        .3000
  OUTPUT OPTION= 1 0 0 1 0 1ID=        90

  STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,      CROSS-SECTION=  14      STRUCTURE=  0
  IN1 HYD=0      IN2 HYD=0      OUT HYD=6      DATA FIELDS=          1.5500      79.0000        .2500
  OUTPUT OPTION= 1 0 0 1 0 1ID=        91

  STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,      CROSS-SECTION=  16      STRUCTURE=  0
  IN1 HYD=0      IN2 HYD=0      OUT HYD=6      DATA FIELDS=          2.2400      82.0000        .5900
  OUTPUT OPTION= 1 0 0 1 0 1ID=        92

  STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,      CROSS-SECTION=  13      STRUCTURE=  0
  IN1 HYD=0      IN2 HYD=0      OUT HYD=6      DATA FIELDS=          1.3500      83.0000        .2100
  OUTPUT OPTION= 1 0 0 1 0 1ID=        93

  STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,      CROSS-SECTION=  12      STRUCTURE=  0
  IN1 HYD=0      IN2 HYD=0      OUT HYD=6      DATA FIELDS=          1.4300      86.0000        .4500
  OUTPUT OPTION= 1 0 0 1 0 1ID=        95

  STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,      CROSS-SECTION=  11      STRUCTURE=  0
  IN1 HYD=0      IN2 HYD=0      OUT HYD=6      DATA FIELDS=           .6300      82.0000        .3100
  OUTPUT OPTION= 1 0 0 1 0 1ID=        96

  STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,      CROSS-SECTION=  17      STRUCTURE=  0
  IN1 HYD=0      IN2 HYD=0      OUT HYD=6      DATA FIELDS=           .2100      79.0000        .2300
  OUTPUT OPTION= 1 0 0 1 0 1ID=        97
```

NOTE, These are changes to 24 Hour Curve Number

EXECUTIVE CONTROL CARD 98 OPERATION LIST

LISTING OF DATA IN CORE

0 WEEKS WASH FRS DESIGN HYDROLOGY

VELOCITY INCREMENT

1 CTABLE .2000

8	.0000	.0800	.1800	.2500	.3200
8	.3700	.4100	.4500	.4900	.5100
8	.5400	.5700	.5900	.6100	.6300
8	.6500	.6600	.6700	.6900	.7000
8	.7100	.7200	.7300	.7400	.7500
8	.7600	.7700	.7700	.7800	.7900
8	.7900	.8000	.8100	.8100	.8200
8	.8200	.8300	.8300	.8400	.8400
8	.8400	.8500	.8500	.8600	.8600
8	.8600	.8600	.8700	.8700	.8700
8	.8800	.8800	.8800	.8900	.8900
8	.8900	.8900	.8900	.8900	.9000
8	.9000	.9000	.9000	.9000	.9100
8	.9100	.9100	.9100	.9100	.9100
8	.9200	.9200	.9200	.9200	.9200
8	.9200	.9200	.9200	.9300	.9300

9 ENDTBL

STRUCT NO.

3 STRUCT 7

	ELEVATION	DISCHARGE	STORAGE
8	1967.0000	.0000	.0000
8	1967.5000	16.0000	16.2000
8	1968.0000	46.0000	32.5000
8	1968.5000	87.0000	49.7000
8	1969.0000	88.0000	65.0000
8	1970.5000	91.0000	129.3000
8	1972.1000	94.0000	212.9000
8	1975.2000	100.0000	421.9000
8	1976.7000	103.0000	545.9000
8	1977.8000	105.0000	641.5000
8	1978.3000	106.0000	686.7000
8	1978.8000	106.0000	734.3000
8	1979.3000	107.0000	789.7000
8	1979.8000	108.0000	830.1000
8	1984.5000	1293.0000	1357.7000
8	1987.6000	5512.0000	1774.1000
8	1990.7000	12053.0000	2243.6000
8	1996.9000	31953.0000	3357.8000

```
8                    2000.0000  45388.0000   4029.1000
9 ENDTBL

                 TIME INCREMENT
4 DIMHYD

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 PEAK K FACTOR =  484.00


                 TIME INCREMENT
5 RAINFL 1                .5000

8                .0000      .0080      .0170      .0260      .0350
8                .0450      .0550      .0650      .0760      .0870
8                .0990      .1120      .1250      .1400      .1560
8                .1740      .1940      .2190      .2540      .3030
8                .5150      .5830      .6240      .6540      .6820
8                .7050      .7270      .7480      .7670      .7840
8                .8000      .8160      .8300      .8440      .8570
8                .8700      .8820      .8930      .9050      .9160
8                .9260      .9360      .9460      .9550      .9650
8                .9740      .9830      .9920     1.0000     1.0000
9 ENDTBL

                 TIME INCREMENT
5 RAINFL 2                .5000

8                .0000      .0050      .0110      .0160      .0220
8                .0280      .0350      .0410      .0480      .0560
8                .0630      .0710      .0800      .0890      .0980
8                .1090      .1200      .1330      .1470      .1630
8                .1810      .2040      .2350      .2830      .6630
8                .7350      .7720      .7990      .8200      .8380
8                .8540      .8680      .8800      .8910      .9020
8                .9120      .9210      .9290      .9370      .9450
8                .9520      .9590      .9650      .9720      .9780
8                .9840      .9890      .9950     1.0000     1.0000
9 ENDTBL

                 TIME INCREMENT
```

```
5 RAINFL 3                    2.4000

8                .0000        .0020        .0040        .0059        .0079
8                .0099        .0121        .0142        .0164        .0185
8                .0207        .0231        .0255        .0280        .0304
8                .0328        .0355        .0382        .0410        .0437
8                .0464        .0495        .0526        .0558        .0589
8                .0620        .0657        .0695        .0732        .0770
8                .0807        .0853        .0899        .0946        .0992
8                .1038        .1101        .1164        .1226        .1289
8                .1352        .1454        .1556        .1657        .1759
8                .1861        .1999        .2171        .2404        .2782
8                .7041        .7625        .7911        .8108        .8261
8                .8357        .8440        .8523        .8607        .8690
8                .8773        .8826        .8879        .8932        .8985
8                .9038        .9079        .9121        .9162        .9204
8                .9245        .9279        .9313        .9347        .9381
8                .9415        .9444        .9473        .9502        .9531
8                .9560        .9586        .9611        .9637        .9662
8                .9688        .9711        .9734        .9756        .9779
8                .9802        .9823        .9843        .9864        .9884
8                .9905        .9929        .9952        .9976       1.0000
9 ENDTBL

                   TIME INCREMENT
5 RAINFL 4                    .2500

8                .0000        .0060        .0127        .0194        .0261
8                .0402        .0544        .0693        .0886        .5745
8                .7042        .7623        .8145        .8547        .8883
8                .9218        .9359        .9471        .9583        .9672
8                .9769        .9836        .9897        .9948       1.0000
9 ENDTBL

                   TIME INCREMENT
5 RAINFL 5                    .5000

8                .0000        .0040        .0080        .0110        .0160
8                .0210        .0270        .0340        .0440        .0550
8                .0700        .0880        .1080        .1370        .1720
8                .2170        .2730        .3410        .4200        .4920
8                .5600        .6180        .6720        .7190        .7530
8                .7820        .8070        .8270        .8450        .8600
8                .8730        .8850        .8950        .9030        .9130
8                .9210        .9300        .9350        .9420        .9490
8                .9540        .9600        .9670        .9720        .9780
8                .9820        .9890        .9930       1.0000       1.0000
9 ENDTBL
```

STANDARD CONTROL INSTRUCTIONS

```
6 RUNOFF 1  15        6      1.7200     80.0000      .30001 0 0 1 0 1
6 REACH  3 114   6    5   2700.0000       .8000      .00000 0 0 0 0 0
6 RUNOFF 1  14        6      1.5500     79.0000      .25001 0 0 1 0 1
6 ADDHYD 4  14   5 6 7                                    1 0 0 1 0 1
6 SAVMOV 5  14   7    5
6 RUNOFF 1  16        6      2.2400     82.0000      .59001 0 0 1 0 1
6 ADDHYD 4 114   5 6 7                                    1 0 0 1 0 1
6 REACH  3 113   7    5   4300.0000       .8000      .00000 0 0 0 0 0
6 RUNOFF 1  13        6      1.3500     83.0000      .21001 0 0 1 0 1
6 ADDHYD 4  13   5 6 7                                    1 0 0 1 0 1
6 REACH  3 112   7    5   4600.0000       .8000      .00000 0 0 0 0 0
6 RUNOFF 1  12        6      1.4300     86.0000      .45001 0 0 1 0 1
6 ADDHYD 4  12   5 6 7                                    1 0 0 1 0 1
6 REACH  3 111   7    5   1800.0000       .8000      .00000 0 0 0 0 0
6 RUNOFF 1  11        6       .6300     82.0000      .31001 0 0 1 0 1
6 ADDHYD 4 111   5 6 7                                    1 0 0 1 0 1
6 SAVMOV 5 111   7    5
6 RUNOFF 1  17        6       .2100     79.0000      .23001 0 0 1 0 1
6 ADDHYD 4 117   5 6 7                                    1 1 0 1 0 1
6 SAVMOV 5 117   7    6
6 RESVOR 2     7 6    7   1967.0000                        1 1 1 1 0 1
  ENDATA
```

END OF LISTING

2-YEAR
24-HRS

PASS= 2

EXECUTIVE CONTROL CARD 99 OPERATION INCREM, MAIN TIME INCREMENT= .20
EXECUTIVE CONTROL CARD 99A OPERATION COMPUT, FROM XSECTN/STRUCT 15/ 0 TO XSECTN/STRUCT 0/ 7
STARTING TIME= .00 RAIN DEPTH= 1.45 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 SOIL CONDITION= 2
ALTERNATE NO.= 1 STORM NO.= 2

SUBROUTINE RUNOFF CROSS SECTION 15
AREA= 1.72 INPUT RUNOFF CURVE= 80.0 TIME OF CONCENTRATION= .30

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.10	190.293	(RUNOFF)
16.92	15.098	(RUNOFF)
19.35	11.501	(RUNOFF)
20.32	10.229	(RUNOFF)
21.50	10.289	(RUNOFF)
22.31	9.003	(RUNOFF)
23.50	8.982	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .2605 CFS-HRS= 289.17 ACRE-FT= 23.90

SUBROUTINE REACH CROSS SECTION 114
LENGTH= 2700.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .44

SUBROUTINE RUNOFF CROSS SECTION 14
AREA= 1.55 INPUT RUNOFF CURVE= 79.0 TIME OF CONCENTRATION= .25

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.06	162.157	(RUNOFF)
16.92	12.745	(RUNOFF)
19.33	9.736	(RUNOFF)
20.32	8.667	(RUNOFF)
21.46	8.724	(RUNOFF)
22.32	7.641	(RUNOFF)
23.45	7.653	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .2329 CFS-HRS= 232.97 ACRE-FT= 19.25

SUBROUTINE ADDHYD CROSS SECTION 14
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.15	298.867	(NULL)
16.93	27.782	(NULL)
19.35	21.209	(NULL)
20.31	18.889	(NULL)
21.53	18.837	(NULL)
23.52	16.476	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .2476 CFS-HRS= 522.62 ACRE-FT= 43.19

```
SUBROUTINE SAVMOV    CROSS SECTION  14
          INPUT HYDROGRAPH= 7     OUTPUT HYDROGRAPH= 5


SUBROUTINE RUNOFF    CROSS SECTION  16
          AREA=   2.24     INPUT RUNOFF CURVE=  82.0     TIME OF CONCENTRATION=   .59

          PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
             12.27                         247.581                      (RUNOFF)
             19.37                          16.850                      (RUNOFF)
             21.64                          14.581                      (RUNOFF)
             23.63                          12.669                      (RUNOFF)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=    .3183       CFS-HRS=      460.18        ACRE-FT=      38.03


SUBROUTINE ADDHYD    CROSS SECTION 114
          INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

          PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
             12.21                         534.091                       (NULL)
             16.91                          50.108                       (NULL)
             19.35                          38.059                       (NULL)
             21.56                          33.345                       (NULL)
             23.56                          29.069                       (NULL)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=    .2764       CFS-HRS=      982.80        ACRE-FT=      81.22


SUBROUTINE REACH     CROSS SECTION 113
          LENGTH=   4300.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00

          AVERAGE WATER VELOCITY=   6.800       AVERAGE ROUTING COEFF=  .8000       NUMBER OF ROUTINGS=   .70


SUBROUTINE RUNOFF    CROSS SECTION  13
          AREA=   1.35     INPUT RUNOFF CURVE=  83.0     TIME OF CONCENTRATION=   .21

          PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
             12.01                         263.237                      (RUNOFF)
             16.91                          14.370                      (RUNOFF)
             19.32                          10.816                      (RUNOFF)
             20.31                           9.585                      (RUNOFF)
             21.42                           9.614                      (RUNOFF)
             22.31                           8.390                      (RUNOFF)
             23.41                           8.387                      (RUNOFF)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=    .3452       CFS-HRS=      300.74        ACRE-FT=      24.85


SUBROUTINE ADDHYD    CROSS SECTION  13
          INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

          PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
             12.33                         576.254                       (NULL)
             19.34                          48.777                       (NULL)
             21.62                          41.599                       (NULL)
```

```
   23.61                          36.486                          (NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=    .2905        CFS-HRS=     1286.10        ACRE-FT=     106.28


SUBROUTINE REACH     CROSS SECTION 112
LENGTH=   4600.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00

AVERAGE WATER VELOCITY=   6.800       AVERAGE ROUTING COEFF=  .8000       NUMBER OF ROUTINGS=   .75


SUBROUTINE RUNOFF    CROSS SECTION  12
AREA=   1.43     INPUT RUNOFF CURVE=  86.0     TIME OF CONCENTRATION=   .45

PEAK TIMES                   PEAK DISCHARGES                PEAK ELEVATIONS
   12.17                          292.500                       (RUNOFF)
   19.35                           13.381                       (RUNOFF)
   21.57                           11.666                       (RUNOFF)
   23.57                           10.096                       (RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=    .4599        CFS-HRS=      424.39        ACRE-FT=      35.07


SUBROUTINE ADDHYD    CROSS SECTION  12
INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

PEAK TIMES                   PEAK DISCHARGES                PEAK ELEVATIONS
   12.35                          728.752                       (NULL)
   21.71                           52.966                       (NULL)
   23.71                           45.892                       (NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=    .3203        CFS-HRS=     1713.42        ACRE-FT=     141.60


SUBROUTINE REACH     CROSS SECTION 111
LENGTH=   1800.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00

AVERAGE WATER VELOCITY=   6.800       AVERAGE ROUTING COEFF=  .8000       NUMBER OF ROUTINGS=   .29


SUBROUTINE RUNOFF    CROSS SECTION  11
AREA=    .63     INPUT RUNOFF CURVE=  82.0     TIME OF CONCENTRATION=   .31

PEAK TIMES                   PEAK DISCHARGES                PEAK ELEVATIONS
   12.09                           91.254                       (RUNOFF)
   16.92                            6.284                       (RUNOFF)
   19.34                            4.752                       (RUNOFF)
   20.31                            4.218                       (RUNOFF)
   21.50                            4.222                       (RUNOFF)
   22.30                            3.699                       (RUNOFF)
   23.50                            3.689                       (RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=    .3180        CFS-HRS=      129.27        ACRE-FT=      10.68


SUBROUTINE ADDHYD    CROSS SECTION 111
INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7
```

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.42	762.946	(NULL)
21.72	56.736	(NULL)
23.71	49.123	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .3199 CFS-HRS= 1841.53 ACRE-FT= 152.18

SUBROUTINE SAVMOV CROSS SECTION 111
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 17
AREA= .21 INPUT RUNOFF CURVE= 79.0 TIME OF CONCENTRATION= .23

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.05	22.847	(RUNOFF)
16.92	1.729	(RUNOFF)
19.33	1.320	(RUNOFF)
20.32	1.175	(RUNOFF)
21.44	1.183	(RUNOFF)
22.31	1.036	(RUNOFF)
23.44	1.038	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .2321 CFS-HRS= 31.46 ACRE-FT= 2.60

SUBROUTINE ADDHYD CROSS SECTION 117
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.41	771.686	(NULL)
21.70	57.840	(NULL)
23.69	50.080	(NULL)

HYDROGRAPH, TZERO= .00 DELTA T= .20 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
10.00	DISCHG	.00	.00	.00	.00	.00	.07	.80	3.02	14.04	132.26
12.00	DISCHG	449.93	720.89	771.57	729.01	609.77	472.99	365.40	291.14	244.89	212.52
14.00	DISCHG	189.48	172.30	158.68	148.96	140.80	134.35	128.53	122.61	117.48	111.66
16.00	DISCHG	106.17	101.20	96.76	93.56	91.60	90.60	89.54	87.83	85.91	83.20
18.00	DISCHG	80.45	77.51	74.28	71.62	69.76	68.68	68.24	68.16	68.01	66.74
20.00	DISCHG	64.89	63.12	61.83	60.91	59.22	57.16	56.07	56.62	57.71	57.70
22.00	DISCHG	56.75	55.42	54.29	53.39	51.66	49.53	48.38	48.90	49.97	49.91
24.00	DISCHG	48.86	43.29	32.26	20.92	11.68	5.57	2.39	.98	.40	.16
26.00	DISCHG	.06	.00								

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .3179 CFS-HRS= 1872.98 ACRE-FT= 154.78

SUBROUTINE SAVMOV CROSS SECTION 117
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

SUBROUTINE RESVOR STRUCTURE 7
SURFACE ELEVATION= 1967.00

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
17.39	88.790	1969.40

HYDROGRAPH, TZERO= .00 DELTA T= .20 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
2.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
4.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
6.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
8.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
10.00	DISCHG	.00	.00	.00	.00	.00	.00	.01	.04	.18	1.36
10.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.01	1967.04
12.00	DISCHG	6.05	15.43	36.85	61.76	85.24	87.44	87.80	88.04	88.18	88.29
12.00	ELEV	1967.19	1967.48	1967.85	1968.19	1968.48	1968.72	1968.90	1969.02	1969.09	1969.15
14.00	DISCHG	88.38	88.45	88.51	88.56	88.60	88.64	88.67	88.70	88.73	88.75
14.00	ELEV	1969.19	1969.22	1969.25	1969.28	1969.30	1969.32	1969.34	1969.35	1969.36	1969.37
16.00	DISCHG	88.76	88.77	88.78	88.79	88.79	88.79	88.79	88.79	88.79	88.79
16.00	ELEV	1969.38	1969.39	1969.39	1969.39	1969.39	1969.39	1969.40	1969.40	1969.39	1969.39
18.00	DISCHG	88.78	88.77	88.76	88.75	88.74	88.72	88.71	88.69	88.67	88.66
18.00	ELEV	1969.39	1969.39	1969.38	1969.38	1969.37	1969.36	1969.35	1969.35	1969.34	1969.33
20.00	DISCHG	88.64	88.62	88.60	88.58	88.56	88.54	88.51	88.49	88.46	88.44
20.00	ELEV	1969.32	1969.31	1969.30	1969.29	1969.28	1969.27	1969.26	1969.24	1969.23	1969.22
22.00	DISCHG	88.41	88.39	88.36	88.34	88.31	88.28	88.25	88.22	88.19	88.16
22.00	ELEV	1969.21	1969.19	1969.18	1969.17	1969.15	1969.14	1969.12	1969.11	1969.09	1969.08
24.00	DISCHG	88.13	88.10	88.06	88.01	87.94	87.85	87.76	87.67	87.58	87.48
24.00	ELEV	1969.06	1969.05	1969.03	1969.01	1968.97	1968.93	1968.88	1968.83	1968.79	1968.74
26.00	DISCHG	87.39	87.29	87.20	87.10	87.01	83.98	80.74	77.62	74.62	71.74
26.00	ELEV	1968.69	1968.65	1968.60	1968.55	1968.50	1968.46	1968.42	1968.39	1968.35	1968.31
28.00	DISCHG	68.96	66.30	63.74	61.28	58.91	56.63	54.44	52.34	50.32	48.37
28.00	ELEV	1968.28	1968.25	1968.22	1968.19	1968.16	1968.13	1968.10	1968.08	1968.05	1968.03
30.00	DISCHG	46.50	45.00	43.65	42.34	41.07	39.84	38.65	37.49	36.37	35.28
30.00	ELEV	1968.01	1967.98	1967.96	1967.94	1967.92	1967.90	1967.88	1967.86	1967.84	1967.82
32.00	DISCHG	34.22	33.19	32.20	31.23	30.30	29.39	28.51	27.66	26.83	26.02
32.00	ELEV	1967.80	1967.79	1967.77	1967.75	1967.74	1967.72	1967.71	1967.69	1967.68	1967.67
34.00	DISCHG	25.24	24.49	23.75	23.04	22.35	21.68	21.03	20.40	19.79	19.20
34.00	ELEV	1967.65	1967.64	1967.63	1967.62	1967.61	1967.59	1967.58	1967.57	1967.56	1967.55
36.00	DISCHG	18.62	18.06	17.52	17.00	16.49	16.00	15.74	15.48	15.23	14.99
36.00	ELEV	1967.54	1967.53	1967.53	1967.52	1967.51	1967.50	1967.49	1967.48	1967.48	1967.47
38.00	DISCHG	14.74	14.50	14.27	14.04	13.81	13.59	13.37	13.15	12.94	12.73
38.00	ELEV	1967.46	1967.45	1967.45	1967.44	1967.43	1967.42	1967.42	1967.41	1967.40	1967.40
40.00	DISCHG	12.52	12.32	12.12	11.92	11.73	11.54	11.35	11.17	10.99	10.81
40.00	ELEV	1967.39	1967.38	1967.38	1967.37	1967.37	1967.36	1967.35	1967.35	1967.34	1967.34
42.00	DISCHG	10.64	10.46	10.29	10.13	9.96	9.80	9.64	9.49	9.33	9.18
42.00	ELEV	1967.33	1967.33	1967.32	1967.32	1967.31	1967.31	1967.30	1967.30	1967.29	1967.29
44.00	DISCHG	9.03	8.89	8.74	8.60	8.46	8.33	8.19	8.06	7.93	7.80
44.00	ELEV	1967.28	1967.28	1967.27	1967.27	1967.26	1967.26	1967.26	1967.25	1967.25	1967.24
46.00	DISCHG	7.67	7.55	7.43	7.31	7.19	7.07	6.96	6.84	6.73	6.62
46.00	ELEV	1967.24	1967.24	1967.23	1967.23	1967.22	1967.22	1967.22	1967.21	1967.21	1967.21
48.00	DISCHG	6.52	6.41	6.31	6.21	6.11	6.01	5.91	5.81	5.72	5.63

48.00	ELEV	1967.20	1967.20	1967.20	1967.19	1967.19	1967.19	1967.18	1967.18	1967.18	1967.18
50.00	DISCHG	5.54	5.45	5.36	5.27	5.19	5.10	5.02	4.94	4.86	4.78
50.00	ELEV	1967.17	1967.17	1967.17	1967.16	1967.16	1967.16	1967.16	1967.15	1967.15	1967.15
52.00	DISCHG	4.70	4.63	4.55	4.48	4.40	4.33	4.26	4.19	4.13	4.06
52.00	ELEV	1967.15	1967.14	1967.14	1967.14	1967.14	1967.14	1967.13	1967.13	1967.13	1967.13
54.00	DISCHG	3.99	3.93	3.87	3.80	3.74	3.68	3.62	3.56	3.50	3.45
54.00	ELEV	1967.12	1967.12	1967.12	1967.12	1967.12	1967.12	1967.11	1967.11	1967.11	1967.11
56.00	DISCHG	3.39	3.34	3.28	3.23	3.18	3.13	3.08	3.03	2.98	2.93
56.00	ELEV	1967.11	1967.10	1967.10	1967.10	1967.10	1967.10	1967.10	1967.09	1967.09	1967.09
58.00	DISCHG	2.88	2.83	2.79	2.74	2.70	2.66	2.61	2.57	2.53	2.49
58.00	ELEV	1967.09	1967.09	1967.09	1967.09	1967.08	1967.08	1967.08	1967.08	1967.08	1967.08

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .3126 CFS-HRS= 1841.66 ACRE-FT= 152.19

ENDCMP

10-YEAR
24-HOUR

PASS= 3

EXECUTIVE CONTROL CARD 99C OPERATION COMPUT. FROM XSECTN/STRUCT 15/ 0 TO XSECTN/STRUCT 0/ 7
STARTING TIME= .00 RAIN DEPTH= 2.58 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 SOIL CONDITION= 2
ALTERNATE NO.= 1 STORM NO.= 3

SUBROUTINE RUNOFF CROSS SECTION 15
AREA= 1.72 INPUT RUNOFF CURVE= 80.0 TIME OF CONCENTRATION= .30

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.04	851.733	(RUNOFF)
16.91	41.907	(RUNOFF)
19.32	31.165	(RUNOFF)
20.30	27.516	(RUNOFF)
21.50	27.389	(RUNOFF)
23.49	23.711	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .9448 CFS-HRS= 1048.80 ACRE-FT= 86.67

SUBROUTINE REACH CROSS SECTION 114
LENGTH= 2700.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .44

SUBROUTINE RUNOFF CROSS SECTION 14
AREA= 1.55 INPUT RUNOFF CURVE= 79.0 TIME OF CONCENTRATION= .25

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.01	775.217	(RUNOFF)
16.91	36.554	(RUNOFF)
19.32	27.212	(RUNOFF)
20.31	24.030	(RUNOFF)
21.46	23.994	(RUNOFF)
22.31	20.900	(RUNOFF)
23.45	20.800	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .8863 CFS-HRS= 886.61 ACRE-FT= 73.27

SUBROUTINE ADDHYD CROSS SECTION 14
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.05	1467.647	(NULL)
16.91	78.340	(NULL)
19.33	58.324	(NULL)
21.52	50.987	(NULL)
23.52	44.088	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .9158 CFS-HRS= 1932.65 ACRE-FT= 159.71

SUBROUTINE SAVMOV CROSS SECTION 14
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

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SUBROUTINE RUNOFF     CROSS SECTION  16
          AREA=    2.24      INPUT RUNOFF CURVE=  82.0      TIME OF CONCENTRATION=    .59

          PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
             12.22                          971.825                       (RUNOFF)
             21.63                           36.800                       (RUNOFF)
             23.63                           31.669                       (RUNOFF)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=    1.0557        CFS-HRS=      1526.16        ACRE-FT=      126.12


SUBROUTINE ADDHYD     CROSS SECTION 114
          INPUT HYDROGRAPHS= 5,6      OUTPUT HYDROGRAPH= 7

          PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
             12.11                         2266.450                       (NULL)
             19.32                          101.456                       (NULL)
             21.56                           87.600                       (NULL)
             23.55                           75.563                       (NULL)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=     .9727        CFS-HRS=      3458.80        ACRE-FT=      285.84


SUBROUTINE REACH      CROSS SECTION 113
          LENGTH=    4300.00      INPUT COEFFICIENT=    .8000      INPUT ROUTINGS=    .00

          AVERAGE WATER VELOCITY=    6.800        AVERAGE ROUTING COEFF=  .8000        NUMBER OF ROUTINGS=    .70


SUBROUTINE RUNOFF     CROSS SECTION  13
          AREA=    1.35      INPUT RUNOFF CURVE=  83.0      TIME OF CONCENTRATION=    .21

          PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
             11.97                          909.033                       (RUNOFF)
             16.91                           36.371                       (RUNOFF)
             19.31                           26.873                       (RUNOFF)
             20.31                           23.674                       (RUNOFF)
             21.41                           23.613                       (RUNOFF)
             22.30                           20.519                       (RUNOFF)
             23.41                           20.418                       (RUNOFF)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=    1.1028        CFS-HRS=       960.83        ACRE-FT=       79.40


SUBROUTINE ADDHYD     CROSS SECTION  13
          INPUT HYDROGRAPHS= 5,6      OUTPUT HYDROGRAPH= 7

          PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
             12.21                         2490.437                       (NULL)
             19.31                          128.210                       (NULL)
             21.61                          108.797                       (NULL)
             23.61                           93.559                       (NULL)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=     .9984        CFS-HRS=      4420.13        ACRE-FT=      365.28
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SUBROUTINE REACH      CROSS SECTION 112
          LENGTH=   4600.00      INPUT COEFFICIENT=   .8000      INPUT ROUTINGS=   .00

          AVERAGE WATER VELOCITY=   6.800        AVERAGE ROUTING COEFF=  .8000        NUMBER OF ROUTINGS=   .75


SUBROUTINE RUNOFF     CROSS SECTION  12
          AREA=   1.43      INPUT RUNOFF CURVE=  86.0      TIME OF CONCENTRATION=   .45

          PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
             12.13                           879.630                       (RUNOFF)
             19.32                            30.767                       (RUNOFF)
             21.57                            26.559                       (RUNOFF)
             23.57                            22.826                       (RUNOFF)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=   1.3116        CFS-HRS=     1210.43        ACRE-FT=     100.03


SUBROUTINE ADDHYD     CROSS SECTION  12
          INPUT HYDROGRAPHS= 5,6      OUTPUT HYDROGRAPH= 7

          PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
             12.29                          3054.321                       (NULL)
             21.72                           133.652                       (NULL)
             23.72                           114.700                       (NULL)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=   1.0538        CFS-HRS=     5637.95        ACRE-FT=     465.92


SUBROUTINE REACH      CROSS SECTION 111
          LENGTH=   1800.00      INPUT COEFFICIENT=   .8000      INPUT ROUTINGS=   .00

          AVERAGE WATER VELOCITY=   6.800        AVERAGE ROUTING COEFF=  .8000        NUMBER OF ROUTINGS=   .29


SUBROUTINE RUNOFF     CROSS SECTION  11
          AREA=    .63      INPUT RUNOFF CURVE=  82.0      TIME OF CONCENTRATION=   .31

          PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
             12.03                           351.047                       (RUNOFF)
             16.91                            16.392                       (RUNOFF)
             19.32                            12.145                       (RUNOFF)
             21.50                            10.631                       (RUNOFF)
             23.50                             9.219                       (RUNOFF)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=   1.0585        CFS-HRS=      430.39        ACRE-FT=      35.57


SUBROUTINE ADDHYD     CROSS SECTION 111
          INPUT HYDROGRAPHS= 5,6      OUTPUT HYDROGRAPH= 7

          PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
             12.35                          3069.123                       (NULL)
             21.72                           143.132                       (NULL)
             23.72                           122.736                       (NULL)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=   1.0535        CFS-HRS=     6064.74        ACRE-FT=     501.19
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SUBROUTINE SAVMOV CROSS SECTION 111
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 17
AREA= .21 INPUT RUNOFF CURVE= 79.0 TIME OF CONCENTRATION= .23

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.00	107.468	(RUNOFF)
16.91	4.958	(RUNOFF)
19.31	3.689	(RUNOFF)
20.31	3.257	(RUNOFF)
21.44	3.254	(RUNOFF)
22.31	2.834	(RUNOFF)
23.43	2.822	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .8835 CFS-HRS= 119.74 ACRE-FT= 9.90

SUBROUTINE ADDHYD CROSS SECTION 117
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.34	3106.429	(NULL)
21.70	146.129	(NULL)
23.69	125.298	(NULL)

HYDROGRAPH, TZERO= .00 DELTA T= .20 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
8.00	DISCHG	.00	.00	.03	.30	.97	1.93	3.09	4.48	6.05	8.25
10.00	DISCHG	11.44	16.07	22.89	31.30	44.61	62.52	90.68	135.27	262.52	926.85
12.00	DISCHG	2106.75	2997.14	3086.96	2735.80	2122.39	1539.13	1125.84	862.86	706.34	601.83
14.00	DISCHG	529.90	477.00	436.02	406.76	382.46	363.32	346.07	329.01	314.11	297.62
16.00	DISCHG	282.23	268.16	255.68	246.53	240.65	237.39	234.12	229.28	223.85	216.38
18.00	DISCHG	208.88	200.86	192.22	185.01	179.81	176.69	175.25	174.78	174.17	170.77
20.00	DISCHG	165.94	161.14	157.57	154.98	150.59	145.29	142.28	143.29	145.82	145.81
22.00	DISCHG	143.43	139.90	136.84	134.41	130.00	124.63	121.54	122.51	125.02	124.93
24.00	DISCHG	122.36	108.54	81.50	53.18	29.69	14.11	6.03	2.47	1.01	.41
26.00	DISCHG	.16	.00								

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 1.0496 CFS-HRS= 6184.48 ACRE-FT= 511.09

SUBROUTINE SAVMOV CROSS SECTION 117
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

SUBROUTINE RESVOR STRUCTURE 7
SURFACE ELEVATION= 1967.00

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
24.27	99.567	1974.98

HYDROGRAPH, TZERO= .00 DELTA T= .20 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
2.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
4.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
6.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
8.00	DISCHG	.00	.00	.00	.00	.01	.04	.08	.14	.22	.33
8.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.01	1967.01
10.00	DISCHG	.49	.70	1.00	1.43	2.02	2.85	4.05	5.81	8.94	20.48
10.00	ELEV	1967.02	1967.02	1967.03	1967.04	1967.06	1967.09	1967.13	1967.18	1967.28	1967.57
12.00	DISCHG	70.91	88.88	91.12	92.79	94.14	94.96	95.55	95.98	96.31	96.57
12.00	ELEV	1968.30	1969.44	1970.56	1971.46	1972.17	1972.60	1972.90	1973.12	1973.29	1973.43
14.00	DISCHG	96.79	96.99	97.16	97.31	97.45	97.58	97.70	97.82	97.92	98.02
14.00	ELEV	1973.54	1973.64	1973.73	1973.81	1973.88	1973.95	1974.01	1974.07	1974.13	1974.18
16.00	DISCHG	98.11	98.20	98.27	98.35	98.42	98.48	98.55	98.61	98.67	98.73
16.00	ELEV	1974.23	1974.27	1974.31	1974.35	1974.38	1974.42	1974.45	1974.48	1974.51	1974.54
18.00	DISCHG	98.78	98.83	98.88	98.92	98.96	99.00	99.04	99.07	99.11	99.14
18.00	ELEV	1974.57	1974.60	1974.62	1974.64	1974.66	1974.68	1974.70	1974.72	1974.74	1974.76
20.00	DISCHG	99.18	99.21	99.23	99.26	99.29	99.31	99.33	99.35	99.37	99.40
20.00	ELEV	1974.77	1974.79	1974.80	1974.82	1974.83	1974.84	1974.85	1974.87	1974.88	1974.89
22.00	DISCHG	99.42	99.44	99.46	99.47	99.49	99.50	99.51	99.52	99.53	99.55
22.00	ELEV	1974.90	1974.91	1974.92	1974.93	1974.94	1974.94	1974.95	1974.95	1974.96	1974.97
24.00	DISCHG	99.56	99.57	99.56	99.55	99.52	99.48	99.44	99.40	99.35	99.30
24.00	ELEV	1974.97	1974.98	1974.97	1974.97	1974.95	1974.93	1974.91	1974.89	1974.86	1974.84
26.00	DISCHG	99.26	99.21	99.16	99.12	99.07	99.02	98.97	98.93	98.88	98.83
26.00	ELEV	1974.82	1974.79	1974.77	1974.74	1974.72	1974.69	1974.67	1974.65	1974.62	1974.60
28.00	DISCHG	98.79	98.74	98.69	98.65	98.60	98.55	98.51	98.46	98.41	98.37
28.00	ELEV	1974.57	1974.55	1974.52	1974.50	1974.48	1974.45	1974.43	1974.40	1974.38	1974.36
30.00	DISCHG	98.32	98.27	98.23	98.18	98.13	98.09	98.04	97.99	97.95	97.90
30.00	ELEV	1974.33	1974.31	1974.28	1974.26	1974.24	1974.21	1974.19	1974.16	1974.14	1974.11
32.00	DISCHG	97.85	97.81	97.76	97.71	97.67	97.62	97.58	97.53	97.48	97.44
32.00	ELEV	1974.09	1974.07	1974.04	1974.02	1974.00	1973.97	1973.95	1973.92	1973.90	1973.88
34.00	DISCHG	97.39	97.34	97.30	97.25	97.21	97.16	97.11	97.07	97.02	96.98
34.00	ELEV	1973.85	1973.83	1973.80	1973.78	1973.76	1973.73	1973.71	1973.68	1973.66	1973.64
36.00	DISCHG	96.93	96.88	96.84	96.79	96.75	96.70	96.65	96.61	96.56	96.52
36.00	ELEV	1973.61	1973.59	1973.57	1973.54	1973.52	1973.49	1973.47	1973.45	1973.42	1973.40
38.00	DISCHG	96.47	96.42	96.38	96.33	96.29	96.24	96.20	96.15	96.10	96.06
38.00	ELEV	1973.38	1973.35	1973.33	1973.31	1973.28	1973.26	1973.23	1973.21	1973.19	1973.16
40.00	DISCHG	96.01	95.97	95.92	95.88	95.83	95.79	95.74	95.70	95.65	95.60
40.00	ELEV	1973.14	1973.12	1973.09	1973.07	1973.05	1973.02	1973.00	1972.98	1972.95	1972.93
42.00	DISCHG	95.56	95.51	95.47	95.42	95.38	95.33	95.29	95.24	95.20	95.15
42.00	ELEV	1972.91	1972.88	1972.86	1972.84	1972.81	1972.79	1972.77	1972.74	1972.72	1972.70
44.00	DISCHG	95.11	95.06	95.02	94.97	94.93	94.88	94.84	94.79	94.75	94.70
44.00	ELEV	1972.67	1972.65	1972.63	1972.60	1972.58	1972.56	1972.53	1972.51	1972.49	1972.46
46.00	DISCHG	94.66	94.61	94.57	94.52	94.48	94.43	94.39	94.34	94.30	94.25
46.00	ELEV	1972.44	1972.42	1972.39	1972.37	1972.35	1972.32	1972.30	1972.28	1972.25	1972.23
48.00	DISCHG	94.21	94.16	94.12	94.07	94.03	93.98	93.93	93.87	93.81	93.76
48.00	ELEV	1972.21	1972.18	1972.16	1972.14	1972.12	1972.09	1972.06	1972.03	1972.00	1971.97
50.00	DISCHG	93.70	93.65	93.59	93.54	93.48	93.43	93.37	93.31	93.26	93.20
50.00	ELEV	1971.94	1971.91	1971.88	1971.85	1971.82	1971.79	1971.76	1971.73	1971.71	1971.68
52.00	DISCHG	93.15	93.09	93.04	92.98	92.93	92.87	92.82	92.76	92.71	92.65
52.00	ELEV	1971.65	1971.62	1971.59	1971.56	1971.53	1971.50	1971.47	1971.44	1971.41	1971.38
54.00	DISCHG	92.60	92.54	92.49	92.43	92.38	92.32	92.27	92.21	92.16	92.11
54.00	ELEV	1971.35	1971.32	1971.29	1971.26	1971.24	1971.21	1971.18	1971.15	1971.12	1971.09

56.00	DISCHG	92.05	92.00	91.94	91.89	91.83	91.78	91.72	91.67	91.61	91.56
56.00	ELEV	1971.06	1971.03	1971.00	1970.97	1970.94	1970.91	1970.89	1970.86	1970.83	1970.80
58.00	DISCHG	91.51	91.45	91.40	91.34	91.29	91.24	91.18	91.13	91.07	91.02
58.00	ELEV	1970.77	1970.74	1970.71	1970.68	1970.65	1970.63	1970.60	1970.57	1970.54	1970.51

TOTAL WATER, IN INCHES ON DRAINAGE AREA= .7823 CFS-HRS= 4609.20 ACRE-FT= 380.90

ENDCMP

100-yr
24-Hr

PASS= 4

EXECUTIVE CONTROL CARD 100 OPERATION COMPUT. FROM XSECTN/STRUCT 15/ 0 TO XSECTN/STRUCT 0/ 7
STARTING TIME= .00 RAIN DEPTH= 4.05 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 SOIL CONDITION= 2
ALTERNATE NO.= 1 STORM NO.= 4

SUBROUTINE RUNOFF CROSS SECTION 15
AREA= 1.72 INPUT RUNOFF CURVE= 80.0 TIME OF CONCENTRATION= .30

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.01	1945.262	(RUNOFF)
16.90	79.579	(RUNOFF)
19.31	58.561	(RUNOFF)
21.50	51.118	(RUNOFF)
23.49	44.036	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.0862 CFS-HRS= 2315.80 ACRE-FT= 191.38

SUBROUTINE REACH CROSS SECTION 114
LENGTH= 2700.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .44

SUBROUTINE RUNOFF CROSS SECTION 14
AREA= 1.55 INPUT RUNOFF CURVE= 79.0 TIME OF CONCENTRATION= .25

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
11.99	1799.495	(RUNOFF)
16.90	70.400	(RUNOFF)
19.31	51.829	(RUNOFF)
20.30	45.607	(RUNOFF)
21.45	45.379	(RUNOFF)
22.30	39.432	(RUNOFF)
23.45	39.132	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 1.9960 CFS-HRS= 1996.66 ACRE-FT= 165.00

SUBROUTINE ADDHYD CROSS SECTION 14
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.03	3427.722	(NULL)
16.90	149.793	(NULL)
19.31	110.311	(NULL)
21.52	95.758	(NULL)
23.52	82.381	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.0392 CFS-HRS= 4303.44 ACRE-FT= 355.64

SUBROUTINE SAVMOV CROSS SECTION 14
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

```
SUBROUTINE RUNOFF    CROSS SECTION  16
          AREA=   2.24     INPUT RUNOFF CURVE=  82.0     TIME OF CONCENTRATION=   .59

          PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
             12.20                        2125.731                      (RUNOFF)
             21.63                          66.971                      (RUNOFF)
             23.63                          57.382                      (RUNOFF)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=   2.2428        CFS-HRS=     3242.30        ACRE-FT=     267.94


SUBROUTINE ADDHYD    CROSS SECTION 114
          INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

          PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
             12.08                        5291.626                      (NULL)
             19.31                         189.319                      (NULL)
             21.55                         162.385                      (NULL)
             23.55                         139.407                      (NULL)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=   2.1220        CFS-HRS=     7545.74        ACRE-FT=     623.58


SUBROUTINE REACH     CROSS SECTION 113
          LENGTH=   4300.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00

          AVERAGE WATER VELOCITY=   6.800       AVERAGE ROUTING COEFF=  .8000       NUMBER OF ROUTINGS=   .70


SUBROUTINE RUNOFF    CROSS SECTION  13
          AREA=   1.35     INPUT RUNOFF CURVE=  83.0     TIME OF CONCENTRATION=   .21

          PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
             11.96                        1899.090                      (RUNOFF)
             16.90                          66.276                      (RUNOFF)
             19.31                          48.556                      (RUNOFF)
             20.30                          42.661                      (RUNOFF)
             21.41                          42.441                      (RUNOFF)
             22.30                          36.808                      (RUNOFF)
             23.41                          36.549                      (RUNOFF)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=   2.3041        CFS-HRS=     2007.41        ACRE-FT=     165.89


SUBROUTINE ADDHYD    CROSS SECTION  13
          INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

          PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
             12.18                        5666.457                      (NULL)
             21.61                         200.438                      (NULL)
             23.61                         171.569                      (NULL)

          TOTAL WATER, IN INCHES ON DRAINAGE AREA=   2.1568        CFS-HRS=     9548.74        ACRE-FT=     789.11


SUBROUTINE REACH     CROSS SECTION 112
          LENGTH=   4600.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00
```

```
AVERAGE WATER VELOCITY=   6.800       AVERAGE ROUTING COEFF=  .8000       NUMBER OF ROUTINGS=   .75

SUBROUTINE RUNOFF    CROSS SECTION  12
AREA=   1.43     INPUT RUNOFF CURVE=  86.0     TIME OF CONCENTRATION=   .45

PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
   12.10                        1742.886                      (RUNOFF)
   19.31                          53.651                      (RUNOFF)
   21.57                          46.103                      (RUNOFF)
   23.57                          39.497                      (RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=   2.5973       CFS-HRS=     2396.97        ACRE-FT=     198.09

SUBROUTINE ADDHYD    CROSS SECTION  12
INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
   12.28                        6780.474                      (NULL)
   21.72                         243.483                      (NULL)
   23.72                         208.045                      (NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=   2.2352       CFS-HRS=    11958.80        ACRE-FT=     988.28

SUBROUTINE REACH     CROSS SECTION 111
LENGTH=   1800.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00

AVERAGE WATER VELOCITY=   6.800       AVERAGE ROUTING COEFF=  .8000       NUMBER OF ROUTINGS=   .29

SUBROUTINE RUNOFF    CROSS SECTION  11
AREA=    .63     INPUT RUNOFF CURVE=  82.0     TIME OF CONCENTRATION=   .31

PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
   12.01                         763.213                      (RUNOFF)
   16.90                          30.280                      (RUNOFF)
   19.31                          22.229                      (RUNOFF)
   21.49                          19.344                      (RUNOFF)
   23.50                          16.654                      (RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=   2.2518       CFS-HRS=      915.55        ACRE-FT=      75.66

SUBROUTINE ADDHYD    CROSS SECTION 111
INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
   12.33                        6800.907                      (NULL)
   21.72                         260.706                      (NULL)
   23.72                         222.571                      (NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=   2.2352       CFS-HRS=    12867.20        ACRE-FT=    1063.35

SUBROUTINE SAVMOV    CROSS SECTION 111
```

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 17
AREA= .21 INPUT RUNOFF CURVE= 79.0 TIME OF CONCENTRATION= .23

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
11.98	248.349	(RUNOFF)
16.90	9.548	(RUNOFF)
19.31	7.026	(RUNOFF)
20.31	6.182	(RUNOFF)
21.43	6.155	(RUNOFF)
22.30	5.346	(RUNOFF)
23.43	5.309	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 1.9895 CFS-HRS= 269.63 ACRE-FT= 22.28

Note, This Hyd can be used in DAMS 2 Program to Sed Crest of B. Spy.

SUBROUTINE ADDHYD CROSS SECTION 117
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
12.31	6886.950	(NULL)
21.70	266.343	(NULL)
23.70	227.359	(NULL)

HYDROGRAPH, TZERO= .00 DELTA T= .20 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
6.00	DISCHG	.00	.05	.39	1.15	2.15	3.23	4.53	6.32	8.63	11.58
8.00	DISCHG	14.96	19.33	25.44	32.41	40.82	50.73	62.96	78.02	94.09	112.65
10.00	DISCHG	132.53	157.27	189.59	225.92	277.26	336.79	422.43	545.14	878.61	2442.66
12.00	DISCHG	4938.78	6722.44	6796.65	5875.62	4431.81	3130.95	2239.85	1688.57	1365.97	1154.48
14.00	DISCHG	1010.82	905.83	825.28	767.77	720.22	682.82	649.17	616.20	587.37	555.77
16.00	DISCHG	526.38	499.44	475.59	457.99	446.47	439.91	433.43	424.17	413.77	399.62
18.00	DISCHG	385.48	370.35	354.19	340.63	330.74	324.70	321.82	320.73	319.42	313.06
20.00	DISCHG	304.11	295.10	288.32	283.40	275.28	265.55	259.84	261.36	265.79	265.78
22.00	DISCHG	261.45	254.89	249.13	244.56	236.51	226.73	220.93	222.44	226.85	226.74
24.00	DISCHG	222.12	197.13	148.51	97.18	54.24	25.73	10.96	4.49	1.83	.74
26.00	DISCHG	.29	.10	.00							

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.2295 CFS-HRS= 13136.82 ACRE-FT= 1085.63

SUBROUTINE SAVMOV CROSS SECTION 117
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

SUBROUTINE RESVOR STRUCTURE 7
SURFACE ELEVATION= 1967.00

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
22.45	248.250	1980.36
45.10	106.005	1978.80

TIME HYDROGRAPH, TZERO= .00 DELTA T= .20 DRAINAGE AREA= 9.13

.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
2.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
4.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
6.00	DISCHG	.00	.00	.00	.02	.04	.09	.15	.23	.35	.51
6.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.01	1967.01	1967.02
8.00	DISCHG	.71	.98	1.33	1.77	2.34	3.04	3.91	4.99	6.30	7.88
8.00	ELEV	1967.02	1967.03	1967.04	1967.06	1967.07	1967.10	1967.12	1967.16	1967.20	1967.25
10.00	DISCHG	9.73	11.92	14.54	19.08	26.05	34.47	44.81	61.43	86.56	88.49
10.00	ELEV	1967.30	1967.37	1967.45	1967.55	1967.67	1967.81	1967.98	1968.19	1968.49	1969.25
12.00	DISCHG	91.21	94.49	97.65	100.51	102.53	103.87	104.76	105.43	105.95	106.00
12.00	ELEV	1970.61	1972.35	1973.99	1975.46	1976.47	1977.18	1977.67	1978.01	1978.27	1978.30
14.00	DISCHG	106.00	106.00	106.21	106.42	106.61	106.79	106.95	107.15	107.36	107.54
14.00	ELEV	1978.30	1978.30	1978.91	1979.01	1979.11	1979.19	1979.28	1979.38	1979.48	1979.57
16.00	DISCHG	107.72	107.89	111.86	124.79	136.73	147.90	158.42	168.28	177.41	185.77
16.00	ELEV	1979.66	1979.74	1979.82	1979.87	1979.91	1979.96	1980.00	1980.04	1980.08	1980.11
18.00	DISCHG	193.31	200.04	205.95	211.10	215.65	219.73	223.50	227.07	230.46	233.58
18.00	ELEV	1980.14	1980.17	1980.19	1980.21	1980.23	1980.24	1980.26	1980.27	1980.29	1980.30
20.00	DISCHG	236.32	238.62	240.56	242.21	243.56	244.54	245.20	245.77	246.41	247.12
20.00	ELEV	1980.31	1980.32	1980.33	1980.33	1980.34	1980.34	1980.34	1980.35	1980.35	1980.35
22.00	DISCHG	247.72	248.10	248.24	248.19	247.91	247.32	246.46	245.56	244.80	244.14
22.00	ELEV	1980.35	1980.36	1980.36	1980.36	1980.35	1980.35	1980.35	1980.35	1980.34	1980.34
24.00	DISCHG	243.42	242.19	239.66	235.41	229.58	222.67	215.23	207.66	200.21	192.96
24.00	ELEV	1980.34	1980.33	1980.32	1980.31	1980.28	1980.25	1980.23	1980.20	1980.17	1980.14
26.00	DISCHG	185.95	179.18	172.65	166.35	160.29	154.45	148.82	143.40	138.17	133.13
26.00	ELEV	1980.11	1980.08	1980.06	1980.03	1980.01	1979.98	1979.96	1979.94	1979.92	1979.90
28.00	DISCHG	128.28	123.60	119.10	114.76	110.58	107.98	107.94	107.90	107.85	107.81
28.00	ELEV	1979.88	1979.86	1979.84	1979.83	1979.81	1979.79	1979.77	1979.75	1979.73	1979.70
30.00	DISCHG	107.76	107.72	107.67	107.63	107.59	107.54	107.50	107.45	107.41	107.37
30.00	ELEV	1979.68	1979.66	1979.64	1979.62	1979.59	1979.57	1979.55	1979.53	1979.51	1979.48
32.00	DISCHG	107.32	107.28	107.24	107.19	107.15	107.10	107.06	107.02	106.98	106.95
32.00	ELEV	1979.46	1979.44	1979.42	1979.40	1979.37	1979.35	1979.33	1979.31	1979.29	1979.27
34.00	DISCHG	106.92	106.88	106.85	106.82	106.79	106.76	106.72	106.69	106.66	106.63
34.00	ELEV	1979.26	1979.24	1979.23	1979.21	1979.19	1979.18	1979.16	1979.15	1979.13	1979.11
36.00	DISCHG	106.60	106.57	106.53	106.50	106.47	106.44	106.41	106.38	106.34	106.31
36.00	ELEV	1979.10	1979.08	1979.07	1979.05	1979.04	1979.02	1979.00	1978.99	1978.97	1978.96
38.00	DISCHG	106.28	106.25	106.22	106.18	106.15	106.12	106.09	106.06	106.03	106.00
38.00	ELEV	1978.94	1978.92	1978.91	1978.89	1978.88	1978.86	1978.84	1978.83	1978.81	1978.30
40.00	DISCHG	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00
40.00	ELEV	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30
42.00	DISCHG	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00
42.00	ELEV	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30
44.00	DISCHG	106.00	106.00	106.00	106.00	106.00	106.00	106.00	105.96	105.92	105.88
44.00	ELEV	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.28	1978.26	1978.24
46.00	DISCHG	105.85	105.81	105.77	105.73	105.69	105.65	105.61	105.57	105.54	105.50
46.00	ELEV	1978.22	1978.20	1978.18	1978.16	1978.15	1978.13	1978.11	1978.09	1978.07	1978.05
48.00	DISCHG	105.46	105.42	105.38	105.34	105.30	105.27	105.23	105.19	105.15	105.11
48.00	ELEV	1978.03	1978.01	1977.99	1977.97	1977.95	1977.93	1977.91	1977.89	1977.88	1977.86
50.00	DISCHG	105.07	105.04	105.00	104.96	104.92	104.89	104.85	104.82	104.78	104.74
50.00	ELEV	1977.84	1977.82	1977.80	1977.78	1977.76	1977.74	1977.72	1977.70	1977.68	1977.66
52.00	DISCHG	104.71	104.67	104.63	104.60	104.56	104.53	104.49	104.45	104.42	104.38
52.00	ELEV	1977.64	1977.62	1977.60	1977.58	1977.56	1977.54	1977.52	1977.50	1977.48	1977.46
54.	DISCHG	104.35	104.31	104.27	104.24	104.20	104.17	104.13	104.09	104.06	104.02
54	ELEV	1977.44	1977.42	1977.40	1977.38	[illegible]36	1977.34	1977.32	1977.30	1977.28	1977.[illegible]
56.	DISCHG	103.99	103.95	103.91	103.88	[illegible]84	103.81	103.77	103.73	103.70	103.[illegible]

56.00	ELEV	1977.24	1977.22	1977.20	1977.18	1977.16	1977.14	1977.12	1977.10	1977.08	1977.06
58.00	DISCHG	103.63	103.59	103.56	103.52	103.48	103.45	103.41	103.38	103.34	103.30
58.00	ELEV	1977.04	1977.02	1977.01	1976.99	1976.97	1976.95	1976.93	1976.91	1976.89	1976.87

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 1.0770 CFS-HRS= 6345.98 ACRE-FT= 524.43

ENDCMP

24-Hrs
ESH

PASS= 5

EXECUTIVE CONTROL CARD 102 OPERATION COMPUT. FROM XSECTN/STRUCT 15/ 0 TO XSECTN/STRUCT 0/ 7
STARTING TIME= .00 RAIN DEPTH= 7.07 RAIN DURATION= 1.00 RAIN TABLE NO.= 5 SOIL CONDITION= 2
ALTERNATE NO.= 1 STORM NO.= 5

SUBROUTINE RUNOFF CROSS SECTION 15
AREA= 1.72 INPUT RUNOFF CURVE= 80.0 TIME OF CONCENTRATION= .30

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.10	887.665	(RUNOFF)
9.56	875.820	(RUNOFF)
9.91	868.525	(RUNOFF)
16.97	141.366	(RUNOFF)
17.92	130.342	(RUNOFF)
19.32	100.847	(RUNOFF)
20.94	100.572	(RUNOFF)
21.94	86.409	(RUNOFF)
22.97	98.962	(RUNOFF)
23.93	101.266	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.7475 CFS-HRS= 5269.92 ACRE-FT= 435.51

SUBROUTINE REACH CROSS SECTION 114
LENGTH= 2700.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .44

SUBROUTINE RUNOFF CROSS SECTION 14
AREA= 1.55 INPUT RUNOFF CURVE= 79.0 TIME OF CONCENTRATION= .25

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.06	782.956	(RUNOFF)
9.57	772.335	(RUNOFF)
9.92	769.538	(RUNOFF)
16.94	127.610	(RUNOFF)
17.91	117.865	(RUNOFF)
19.30	90.328	(RUNOFF)
20.92	91.037	(RUNOFF)
21.92	78.171	(RUNOFF)
22.94	90.518	(RUNOFF)
23.92	94.300	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.6355 CFS-HRS= 4637.02 ACRE-FT= 383.20

SUBROUTINE ADDHYD CROSS SECTION 14
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.23	1647.134	(NULL)
9.55	1645.453	(NULL)
9.90	1636.678	(NULL)
16.99	264.848	(NULL)
17.93	244.418	(NULL)

19.33	190.616	(NULL)
20.96	188.724	(NULL)
21.95	161.826	(NULL)
22.99	183.122	(NULL)
23.95	186.686	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.6955 CFS-HRS= 9909.22 ACRE-FT= 818.90

SUBROUTINE SAVMOV CROSS SECTION 14
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 16
AREA= 2.24 INPUT RUNOFF CURVE= 82.0 TIME OF CONCENTRATION= .59

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.57	1183.809	(RUNOFF)
17.14	180.021	(RUNOFF)
17.99	165.171	(RUNOFF)
19.49	131.213	(RUNOFF)
21.09	125.945	(RUNOFF)
22.04	108.843	(RUNOFF)
23.15	117.993	(RUNOFF)
24.05	114.372	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.9728 CFS-HRS= 7188.80 ACRE-FT= 594.08

SUBROUTINE ADDHYD CROSS SECTION 114
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.55	2829.243	(NULL)
17.03	442.085	(NULL)
17.94	409.193	(NULL)
19.37	321.204	(NULL)
20.99	313.302	(NULL)
21.97	270.215	(NULL)
23.03	296.844	(NULL)
23.97	298.891	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.8082 CFS-HRS= 17098.01 ACRE-FT= 1412.98

SUBROUTINE REACH CROSS SECTION 113
LENGTH= 4300.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .70

SUBROUTINE RUNOFF CROSS SECTION 13
AREA= 1.35 INPUT RUNOFF CURVE= 83.0 TIME OF CONCENTRATION= .21

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.00	761.653	(RUNOFF)
9.51	731.325	(RUNOFF)

9.91	723.956	(RUNOFF)
16.92	116.096	(RUNOFF)
17.91	107.336	(RUNOFF)
19.30	81.561	(RUNOFF)
20.91	82.487	(RUNOFF)
21.91	71.060	(RUNOFF)
22.92	82.908	(RUNOFF)
23.91	86.662	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 5.0798 CFS-HRS= 4425.79 ACRE-FT= 365.75

SUBROUTINE ADDHYD CROSS SECTION 13
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.60	3549.898	(NULL)
17.09	538.493	(NULL)
17.94	502.410	(NULL)
19.44	398.354	(NULL)
21.03	381.367	(NULL)
21.98	330.342	(NULL)
23.09	349.494	(NULL)
23.99	346.322	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.8627 CFS-HRS= 21528.51 ACRE-FT= 1779.12

SUBROUTINE REACH CROSS SECTION 112
LENGTH= 4600.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .75

SUBROUTINE RUNOFF CROSS SECTION 12
AREA= 1.43 INPUT RUNOFF CURVE= 86.0 TIME OF CONCENTRATION= .45

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.22	839.669	(RUNOFF)
17.06	120.076	(RUNOFF)
17.96	109.996	(RUNOFF)
19.40	86.811	(RUNOFF)
21.01	84.729	(RUNOFF)
22.00	72.783	(RUNOFF)
23.06	81.002	(RUNOFF)
23.99	80.457	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 5.4223 CFS-HRS= 5004.11 ACRE-FT= 413.54

SUBROUTINE ADDHYD CROSS SECTION 12
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.73	4352.136	(NULL)
17.21	650.164	(NULL)
17.94	603.212	(NULL)

19.56	482.205	(NULL)
21.17	457.936	(NULL)
22.05	396.050	(NULL)
23.22	416.396	(NULL)
24.11	406.926	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.9596 CFS-HRS= 26534.44 ACRE-FT= 2192.81

SUBROUTINE REACH CROSS SECTION 111
LENGTH= 1800.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .29

SUBROUTINE RUNOFF CROSS SECTION 11
AREA= .63 INPUT RUNOFF CURVE= 82.0 TIME OF CONCENTRATION= .31

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.09	342.117	(RUNOFF)
9.53	334.979	(RUNOFF)
9.90	330.454	(RUNOFF)
16.97	52.629	(RUNOFF)
17.92	48.329	(RUNOFF)
19.32	37.531	(RUNOFF)
20.94	37.379	(RUNOFF)
21.94	32.107	(RUNOFF)
22.97	36.657	(RUNOFF)
23.94	37.365	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.9693 CFS-HRS= 2020.45 ACRE-FT= 166.97

SUBROUTINE ADDHYD CROSS SECTION 111
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.82	4677.514	(NULL)
17.21	694.050	(NULL)
19.57	516.050	(NULL)
21.18	487.396	(NULL)
23.24	438.723	(NULL)
24.08	422.401	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.9603 CFS-HRS= 28554.98 ACRE-FT= 2359.78

SUBROUTINE SAVMOV CROSS SECTION 111
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 17
AREA= .21 INPUT RUNOFF CURVE= 79.0 TIME OF CONCENTRATION= .23

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.04	106.322	(RUNOFF)
9.56	104.610	(RUNOFF)

9.92	104.412	(RUNOFF)
10.90	88.123	(RUNOFF)
16.93	17.369	(RUNOFF)
17.91	16.012	(RUNOFF)
19.30	12.255	(RUNOFF)
20.92	12.370	(RUNOFF)
22.93	12.371	(RUNOFF)
23.91	12.900	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.6354 CFS-HRS= 628.22 ACRE-FT= 51.92

SUBROUTINE ADDHYD CROSS SECTION 117
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.82	4780.141	(NULL)
17.20	709.072	(NULL)
19.56	527.745	(NULL)
21.17	497.614	(NULL)
23.23	447.235	(NULL)
24.04	433.046	(NULL)

TIME HYDROGRAPH, TZERO= .00 DELTA T= .20 DRAINAGE AREA= 9.13

.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
4.00	DISCHG	.00	.06	.96	3.93	10.14	21.30	39.91	67.18	102.17	149.44
6.00	DISCHG	207.54	288.96	403.13	531.96	686.97	853.25	1049.26	1286.60	1536.93	1841.93
8.00	DISCHG	2162.17	2518.95	2917.55	3307.20	3736.55	4152.54	4475.49	4667.28	4764.21	4779.92
10.00	DISCHG	4768.41	4699.57	4562.27	4414.80	4258.74	4129.84	3997.86	3845.67	3685.35	3429.89
12.00	DISCHG	3149.25	2867.35	2613.37	2420.21	2253.50	2118.31	1984.48	1841.08	1714.64	1599.16
14.00	DISCHG	1507.72	1424.30	1338.67	1261.73	1182.73	1113.81	1054.84	1005.18	965.12	917.36
16.00	DISCHG	868.96	813.42	752.00	703.50	688.85	699.30	709.07	699.16	678.99	666.36
18.00	DISCHG	665.05	645.85	591.22	529.00	493.22	486.73	500.98	518.99	527.26	508.78
20.00	DISCHG	476.52	448.88	438.37	443.04	463.90	488.98	497.26	480.55	455.02	439.80
22.00	DISCHG	437.77	431.28	408.01	383.88	392.17	424.72	446.90	434.37	407.73	407.72
24.00	DISCHG	432.28	422.29	343.09	236.61	135.67	64.95	27.65	11.28	4.62	1.91
26.00	DISCHG	.75	.25	.00							

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.9528 CFS-HRS= 29183.19 ACRE-FT= 2411.70

SUBROUTINE SAVMOV CROSS SECTION 117
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

SUBROUTINE RESVOR STRUCTURE 7
SURFACE ELEVATION= 1967.00

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
13.29	1922.174	1984.96
50.30	106.001	1978.80

TIME HYDROGRAPH, TZERO= .00 DELTA T= .20 DRAINAGE AREA= 9.13

	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	
	ELEV	1967.00	1967.00	1967.00	1967.00	.00	1967.00	1967.00	1967.00	1967.00	1967
2	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.

2.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
4.00	DISCHG	.00	.00	.01	.05	.16	.41	.90	1.75	3.10	5.08
4.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.01	1967.01	1967.03	1967.05	1967.10	1967.16
6.00	DISCHG	7.89	11.78	18.21	31.68	49.86	77.69	87.68	88.61	89.63	90.86
6.00	ELEV	1967.25	1967.37	1967.54	1967.76	1968.05	1968.39	1968.84	1969.30	1969.81	1970.43
8.00	DISCHG	92.03	93.36	94.73	96.16	97.79	99.61	101.36	103.13	104.72	106.00
8.00	ELEV	1971.05	1971.76	1972.48	1973.22	1974.06	1975.00	1975.88	1976.77	1977.65	1978.30
10.00	DISCHG	106.87	171.62	334.15	485.57	625.94	755.99	876.56	987.55	1088.80	1178.78
10.00	ELEV	1979.23	1980.05	1980.70	1981.30	1981.85	1982.37	1982.85	1983.29	1983.69	1984.05
12.00	DISCHG	1255.72	1405.75	1611.99	1751.81	1842.22	1895.33	1919.45	1918.42	1896.70	1859.64
12.00	ELEV	1984.35	1984.58	1984.73	1984.84	1984.90	1984.94	1984.96	1984.96	1984.94	1984.92
14.00	DISCHG	1812.32	1758.81	1700.50	1638.64	1574.29	1508.46	1442.91	1379.11	1318.23	1285.21
14.00	ELEV	1984.88	1984.84	1984.80	1984.75	1984.71	1984.66	1984.61	1984.56	1984.52	1984.47
16.00	DISCHG	1270.92	1255.26	1238.03	1219.44	1200.36	1181.91	1164.50	1147.72	1131.00	1114.30
16.00	ELEV	1984.41	1984.35	1984.28	1984.21	1984.13	1984.06	1983.99	1983.92	1983.86	1983.79
18.00	DISCHG	1097.95	1081.82	1064.93	1046.53	1027.02	1007.44	988.73	971.28	954.94	939.02
18.00	ELEV	1983.73	1983.66	1983.60	1983.52	1983.45	1983.37	1983.29	1983.22	1983.16	1983.10
20.00	DISCHG	922.75	905.98	889.13	872.78	857.50	843.61	830.84	818.38	805.60	792.54
20.00	ELEV	1983.03	1982.96	1982.90	1982.83	1982.77	1982.72	1982.67	1982.62	1982.57	1982.52
22.00	DISCHG	779.65	767.07	754.41	741.34	728.46	716.80	706.56	696.87	686.81	676.64
22.00	ELEV	1982.46	1982.41	1982.36	1982.31	1982.26	1982.21	1982.17	1982.14	1982.10	1982.06
24.00	DISCHG	667.29	658.54	648.49	635.41	619.04	600.13	579.95	559.52	539.41	519.87
24.00	ELEV	1982.02	1981.98	1981.94	1981.89	1981.83	1981.75	1981.67	1981.59	1981.51	1981.43
26.00	DISCHG	500.97	482.73	465.14	448.19	431.85	416.11	400.95	386.33	372.25	358.68
26.00	ELEV	1981.36	1981.29	1981.22	1981.15	1981.08	1981.02	1980.96	1980.90	1980.85	1980.79
28.00	DISCHG	345.61	333.01	320.88	309.18	297.91	287.05	276.59	266.51	256.80	247.44
28.00	ELEV	1980.74	1980.69	1980.64	1980.60	1980.55	1980.51	1980.47	1980.43	1980.39	1980.35
30.00	DISCHG	238.42	229.73	221.36	213.29	205.51	198.02	190.81	183.85	177.15	170.69
30.00	ELEV	1980.32	1980.28	1980.25	1980.22	1980.19	1980.16	1980.13	1980.10	1980.07	1980.05
32.00	DISCHG	164.47	158.48	152.70	147.14	141.77	136.61	131.63	126.83	122.21	117.75
32.00	ELEV	1980.02	1980.00	1979.98	1979.96	1979.93	1979.91	1979.89	1979.87	1979.86	1979.84
34.00	DISCHG	113.46	109.33	107.97	107.93	107.88	107.84	107.79	107.75	107.71	107.66
34.00	ELEV	1979.82	1979.81	1979.79	1979.76	1979.74	1979.72	1979.70	1979.67	1979.65	1979.63
36.00	DISCHG	107.62	107.57	107.53	107.49	107.44	107.40	107.35	107.31	107.27	107.22
36.00	ELEV	1979.61	1979.59	1979.56	1979.54	1979.52	1979.50	1979.48	1979.45	1979.43	1979.41
38.00	DISCHG	107.18	107.13	107.09	107.05	107.00	106.97	106.94	106.91	106.87	106.84
38.00	ELEV	1979.39	1979.37	1979.35	1979.32	1979.30	1979.29	1979.27	1979.25	1979.24	1979.22
40.00	DISCHG	106.81	106.78	106.75	106.72	106.68	106.65	106.62	106.59	106.56	106.52
40.00	ELEV	1979.21	1979.19	1979.17	1979.16	1979.14	1979.13	1979.11	1979.09	1979.08	1979.06
42.00	DISCHG	106.49	106.46	106.43	106.40	106.37	106.33	106.30	106.27	106.24	106.21
42.00	ELEV	1979.05	1979.03	1979.01	1979.00	1978.98	1978.97	1978.95	1978.94	1978.92	1978.90
44.00	DISCHG	106.18	106.14	106.11	106.08	106.05	106.02	106.00	106.00	106.00	106.00
44.00	ELEV	1978.89	1978.87	1978.86	1978.84	1978.82	1978.81	1978.30	1978.30	1978.30	1978.30
46.00	DISCHG	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00
46.00	ELEV	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30
48.00	DISCHG	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00
48.00	ELEV	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30
50.00	DISCHG	106.00	106.00	106.00	105.99	105.95	105.91	105.87	105.83	105.79	105.76
50.00	ELEV	1978.30	1978.30	1978.30	1978.29	1978.27	1978.26	1978.24	1978.22	1978.20	1978.18
52.00	DISCHG	105.72	105.68	105.64	105.60	105.56	105.52	105.49	105.45	105.41	105.37
52.00	ELEV	1978.16	1978.14	1978.12	1978.10	1978.08	1978.06	1978.04	1978.02	1978.00	1977.99
54.00	DISCHG	105.33	105.29	105.25	105.22	105.18	105.14	105.10	105.06	105.02	104.99
54.00	ELEV	1977.97	1977.95	1977.93	1977.91	1977.89	1977.87	1977.85	1977.83	1977.81	1977.79
56.00	DISCHG	104.95	104.91	104.88	104.84	104.80	104.77	104.73	104.70	104.66	104.62
56.00	ELEV	1977.77	1977.75	1977.73	1977.71	1977.69	1977.67	1977.65	1977.63	1977.61	1977.59
58	DISCHG	104.59	104.55	104.52	104.48	.44	104.41	104.37	104.33	104.30	104.
58	ELEV	1977.57	1977.55	1977.53	1977.51	.49	1977.47	1977.45	1977.43	1977.41	1977.

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 3.7080 CFS-HRS= 21848.51 ACRE-FT= 1805.56

ENDCMP

201 - Hmw
FBH

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                                                                                                                                PASS=  6
EXECUTIVE CONTROL CARD      104   OPERATION  COMPUT.    FROM XSECTN/STRUCT  15/  0     TO XSECTN/STRUCT   0/  7
        STARTING TIME=    .00     RAIN DEPTH= 15.80   RAIN DURATION=  1.00     RAIN TABLE NO.= 5     SOIL CONDITION= 2
        ALTERNATE NO.= 1          STORM NO.= 6


SUBROUTINE RUNOFF    CROSS SECTION  15
           AREA=   1.72     INPUT RUNOFF CURVE=  80.0     TIME OF CONCENTRATION=   .30

           PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
               9.03                        2481.406                      (RUNOFF)
              16.97                         338.378                      (RUNOFF)
              17.92                         311.395                      (RUNOFF)
              19.31                         240.445                      (RUNOFF)
              20.94                         239.295                      (RUNOFF)
              21.94                         205.360                      (RUNOFF)
              22.97                         234.945                      (RUNOFF)
              23.93                         240.171                      (RUNOFF)

           TOTAL WATER, IN INCHES ON DRAINAGE AREA=  13.1199        CFS-HRS=    14563.59        ACRE-FT=    1203.53


SUBROUTINE REACH     CROSS SECTION 114
           LENGTH=   2700.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00

           AVERAGE WATER VELOCITY=   6.800       AVERAGE ROUTING COEFF=  .8000       NUMBER OF ROUTINGS=   .44


SUBROUTINE RUNOFF    CROSS SECTION  14
           AREA=   1.55     INPUT RUNOFF CURVE=  79.0     TIME OF CONCENTRATION=   .25

           PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
               9.00                        2226.819                      (RUNOFF)
              16.94                         307.509                      (RUNOFF)
              17.91                         283.427                      (RUNOFF)
              19.30                         216.737                      (RUNOFF)
              20.92                         217.955                      (RUNOFF)
              21.92                         186.918                      (RUNOFF)
              22.94                         216.195                      (RUNOFF)
              23.92                         224.975                      (RUNOFF)

           TOTAL WATER, IN INCHES ON DRAINAGE AREA=  12.9700        CFS-HRS=    12974.15        ACRE-FT=    1072.18


SUBROUTINE ADDHYD    CROSS SECTION  14
           INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

           PEAK TIMES                  PEAK DISCHARGES                PEAK ELEVATIONS
               9.06                        4663.946                      (NULL)
              16.99                         636.017                      (NULL)
              17.93                         585.813                      (NULL)
              19.33                         455.872                      (NULL)
              20.96                         450.397                      (NULL)
              21.95                         385.742                      (NULL)
              22.99                         436.939                      (NULL)
              23.95                         444.091                      (NULL)
```

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 13.0516 CFS-HRS= 27543.50 ACRE-FT= 2276.19

SUBROUTINE SAVMOV CROSS SECTION 14
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 16
AREA= 2.24 INPUT RUNOFF CURVE= 82.0 TIME OF CONCENTRATION= .59

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.27	3194.735	(RUNOFF)
17.14	425.563	(RUNOFF)
17.99	389.905	(RUNOFF)
19.48	309.156	(RUNOFF)
21.09	296.239	(RUNOFF)
22.04	255.775	(RUNOFF)
23.15	277.009	(RUNOFF)
24.05	268.302	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 13.4160 CFS-HRS= 19394.59 ACRE-FT= 1602.77

SUBROUTINE ADDHYD CROSS SECTION 114
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.16	7781.934	(NULL)
17.02	1055.010	(NULL)
17.94	974.797	(NULL)
19.37	763.556	(NULL)
20.98	743.421	(NULL)
21.97	640.457	(NULL)
23.03	702.988	(NULL)
23.97	707.296	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 13.1997 CFS-HRS= 46938.08 ACRE-FT= 3878.96

SUBROUTINE REACH CROSS SECTION 113
LENGTH= 4300.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .70

SUBROUTINE RUNOFF CROSS SECTION 13
AREA= 1.35 INPUT RUNOFF CURVE= 83.0 TIME OF CONCENTRATION= .21

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
8.96	2024.006	(RUNOFF)
16.92	272.811	(RUNOFF)
17.91	251.849	(RUNOFF)
19.30	191.084	(RUNOFF)
20.91	192.956	(RUNOFF)
21.91	166.081	(RUNOFF)
22.92	193.621	(RUNOFF)
23.91	202.229	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 13.5471 CFS-HRS= 11802.90 ACRE-FT= 975.39

SUBROUTINE ADDHYD CROSS SECTION 13
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.32	9618.570	(NULL)
17.09	1281.263	(NULL)
17.94	1193.236	(NULL)
19.44	944.301	(NULL)
21.03	902.370	(NULL)
21.98	780.718	(NULL)
23.10	825.410	(NULL)
23.99	816.907	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 13.2706 CFS-HRS= 58752.22 ACRE-FT= 4855.28

SUBROUTINE REACH CROSS SECTION 112
LENGTH= 4600.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .75

SUBROUTINE RUNOFF CROSS SECTION 12
AREA= 1.43 INPUT RUNOFF CURVE= 86.0 TIME OF CONCENTRATION= .45

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.15	2129.729	(RUNOFF)
17.06	277.802	(RUNOFF)
17.96	254.233	(RUNOFF)
19.40	200.413	(RUNOFF)
21.01	195.390	(RUNOFF)
22.00	167.740	(RUNOFF)
23.06	186.571	(RUNOFF)
23.99	185.219	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 13.9739 CFS-HRS= 12896.19 ACRE-FT= 1065.74

SUBROUTINE ADDHYD CROSS SECTION 12
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.49	11642.725	(NULL)
17.21	1539.240	(NULL)
17.94	1426.016	(NULL)
19.56	1137.745	(NULL)
21.17	1078.616	(NULL)
22.05	931.759	(NULL)
23.22	978.865	(NULL)
24.11	955.585	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 13.3927 CFS-HRS= 71652.25 ACRE-FT= 5921.34

SUBROUTINE REACH CROSS SECTION 111
LENGTH= 1800.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .29

SUBROUTINE RUNOFF CROSS SECTION 11
AREA= .63 INPUT RUNOFF CURVE= 82.0 TIME OF CONCENTRATION= .31

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.03	924.613	(RUNOFF)
16.97	124.401	(RUNOFF)
17.92	114.056	(RUNOFF)
19.32	88.422	(RUNOFF)
20.94	87.913	(RUNOFF)
21.94	75.442	(RUNOFF)
22.97	86.057	(RUNOFF)
23.94	87.644	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 13.4074 CFS-HRS= 5451.21 ACRE-FT= 450.49

SUBROUTINE ADDHYD CROSS SECTION 111
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.55	12483.961	(NULL)
17.21	1642.878	(NULL)
19.57	1217.483	(NULL)
21.18	1147.823	(NULL)
23.24	1031.052	(NULL)
24.08	991.513	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 13.3938 CFS-HRS= 77103.89 ACRE-FT= 6371.87

SUBROUTINE SAVMOV CROSS SECTION 111
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 17
AREA= .21 INPUT RUNOFF CURVE= 79.0 TIME OF CONCENTRATION= .23

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
8.98	302.315	(RUNOFF)
16.93	41.855	(RUNOFF)
17.91	38.504	(RUNOFF)
19.30	29.405	(RUNOFF)
20.91	29.615	(RUNOFF)
21.92	25.501	(RUNOFF)
22.93	29.547	(RUNOFF)
23.91	30.776	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 12.9699 CFS-HRS= 1757.78 ACRE-FT= 145.26

SUBRO[illegible]ODHYD CROSS SECTION 117

INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
9.54	12766.718	(NULL)
17.20	1679.058	(NULL)
19.56	1245.533	(NULL)
21.17	1172.265	(NULL)
23.23	1051.335	(NULL)
24.04	1016.843	(NULL)

HYDROGRAPH, TZERO= .00 DELTA T= .20 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2.00	DISCHG	.00	.00	.00	.14	1.81	5.25	14.03	28.30	49.43	86.72
4.00	DISCHG	141.19	211.28	296.16	392.55	524.34	678.31	856.27	1059.14	1262.28	1475.25
6.00	DISCHG	1683.41	1965.86	2361.25	2790.67	3288.80	3780.84	4337.61	4989.72	5647.25	6438.49
8.00	DISCHG	7231.26	8097.50	9041.23	9925.91	10889.03	11786.95	12425.50	12715.54	12758.76	12606.58
10.00	DISCHG	12408.41	12090.35	11626.35	11154.92	10679.03	10286.74	9900.55	9477.48	9042.46	8385.96
12.00	DISCHG	7676.66	6968.01	6333.38	5850.71	5436.27	5101.03	4770.91	4420.51	4111.48	3829.58
14.00	DISCHG	3606.41	3403.33	3196.23	3010.01	2819.30	2653.15	2510.79	2391.00	2294.29	2179.74
16.00	DISCHG	2063.98	1931.12	1784.70	1668.82	1532.73	1656.29	1679.06	1655.72	1607.59	1576.75
18.00	DISCHG	1572.74	1527.14	1398.57	1251.28	1165.54	1149.14	1182.51	1224.99	1244.38	1200.86
20.00	DISCHG	1124.81	1059.13	1033.61	1044.24	1093.11	1151.94	1171.45	1132.41	1072.15	1035.71
22.00	DISCHG	1030.35	1015.03	960.62	903.74	922.37	998.12	1050.47	1021.80	959.22	958.26
24.00	DISCHG	1015.06	992.03	807.55	557.65	319.68	152.89	65.01	26.51	10.85	4.48
26.00	DISCHG	1.77	.60	.16	.00						

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 13.3840 CFS-HRS= 78861.65 ACRE-FT= 6517.13

SUBROUTINE SAVMOV CROSS SECTION 117
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

SUBROUTINE RESVOR STRUCTURE 7
SURFACE ELEVATION= 1967.00

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
10.90	10489.606	1989.96
53.50	106.003	1978.80

HYDROGRAPH, TZERO= .00 DELTA T= .20 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
2.00	DISCHG	.00	.00	.00	.00	.02	.08	.24	.58	1.20	2.29
2.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.01	1967.02	1967.04	1967.07
4.00	DISCHG	4.09	6.88	10.88	16.52	29.76	47.14	74.97	87.62	88.55	89.54
4.00	ELEV	1967.13	1967.22	1967.34	1967.51	1967.73	1968.01	1968.35	1968.81	1969.28	1969.77
6.00	DISCHG	90.69	91.79	93.02	94.39	95.79	97.42	99.30	101.24	103.28	105.35
6.00	ELEV	1970.34	1970.92	1971.58	1972.30	1973.02	1973.87	1974.84	1975.82	1976.85	1977.98
8.00	DISCHG	106.62	247.71	551.01	876.58	1223.96	2563.24	4037.94	5356.50	6828.32	8037.26
8.00	ELEV	1979.11	1980.35	1981.56	1982.85	1984.23	1985.43	1986.52	1987.49	1988.22	1988.80
10.00	DISCHG	8960.37	9639.56	10097.74	10364.73	10478.77	10479.62	10399.91	10253.11	10048.03	9772.59
10.00	ELEV	1989.23	1989.56	1989.77	1989.90	1989.95	1989.95	1989.92	1989.85	1989.75	1989.62
12.00	DISCHG	9413.01	8981.28	8500.01	8002.76	7515.57	7051.57	6614.70	6197.77	5798.86	5444.13
12.00	ELEV	1989.45	1989.24	1989.02	1988.78	1988.55	1988.33	1988.12	1987.93	1987.74	1987.55
14.00	DISCHG	5177.38	4918.93	4668.72	4426.78	4193.11	3967.97	3753.79	3552.45	3365.50	3191.11
14.00	ELEV	1987.35	1987.16	1986.98	1986.80	1986.63	1986.47	1986.31	1986.16	1986.02	1985.89

16.00	DISCHG	3025.87	2866.96	2711.03	2558.93	2418.59	2298.97	2201.42	2118.89	2043.60	1973.84
16.00	ELEV	1985.77	1985.66	1985.54	1985.43	1985.33	1985.24	1985.17	1985.11	1985.05	1985.00
18.00	DISCHG	1912.16	1856.19	1795.41	1722.70	1643.23	1568.14	1505.97	1459.27	1424.56	1393.35
18.00	ELEV	1984.95	1984.91	1984.87	1984.82	1984.76	1984.70	1984.66	1984.62	1984.60	1984.57
20.00	DISCHG	1357.73	1316.66	1288.73	1279.62	1271.94	1266.49	1262.67	1258.63	1252.94	1245.68
20.00	ELEV	1984.55	1984.52	1984.48	1984.45	1984.42	1984.39	1984.38	1984.36	1984.34	1984.31
22.00	DISCHG	1237.93	1230.09	1221.26	1210.72	1199.87	1191.14	1185.06	1179.63	1172.74	1164.94
22.00	ELEV	1984.28	1984.25	1984.22	1984.17	1984.13	1984.10	1984.07	1984.05	1984.02	1983.99
24.00	DISCHG	1158.44	1152.79	1143.57	1126.77	1101.69	1070.15	1035.11	999.05	963.32	928.49
24.00	ELEV	1983.97	1983.94	1983.91	1983.84	1983.74	1983.62	1983.48	1983.33	1983.19	1983.05
26.00	DISCHG	894.76	862.19	830.78	800.51	771.33	743.22	716.13	690.03	664.88	640.64
26.00	ELEV	1982.92	1982.79	1982.67	1982.55	1982.43	1982.32	1982.21	1982.11	1982.01	1981.91
28.00	DISCHG	617.29	594.79	573.12	552.23	532.10	512.71	494.02	476.01	458.66	441.95
28.00	ELEV	1981.82	1981.73	1981.64	1981.56	1981.48	1981.41	1981.33	1981.26	1981.19	1981.12
30.00	DISCHG	425.84	410.32	395.36	380.95	367.07	353.69	340.80	328.38	316.41	304.87
30.00	ELEV	1981.06	1981.00	1980.94	1980.88	1980.83	1980.77	1980.72	1980.67	1980.63	1980.58
32.00	DISCHG	293.76	283.06	272.74	262.80	253.22	243.99	235.10	226.53	218.27	210.32
32.00	ELEV	1980.54	1980.49	1980.45	1980.41	1980.38	1980.34	1980.30	1980.27	1980.24	1980.21
34.00	DISCHG	202.65	195.27	188.15	181.29	174.68	168.32	162.18	156.27	150.57	145.09
34.00	ELEV	1980.18	1980.15	1980.12	1980.09	1980.06	1980.04	1980.01	1979.99	1979.97	1979.95
36.00	DISCHG	139.80	134.70	129.79	125.06	120.50	116.11	111.88	108.00	107.95	107.91
36.00	ELEV	1979.93	1979.91	1979.89	1979.87	1979.85	1979.83	1979.82	1979.80	1979.78	1979.75
38.00	DISCHG	107.87	107.82	107.78	107.73	107.69	107.64	107.60	107.56	107.51	107.47
38.00	ELEV	1979.73	1979.71	1979.69	1979.67	1979.64	1979.62	1979.60	1979.58	1979.56	1979.53
40.00	DISCHG	107.42	107.38	107.34	107.29	107.25	107.21	107.16	107.12	107.07	107.03
40.00	ELEV	1979.51	1979.49	1979.47	1979.45	1979.42	1979.40	1979.38	1979.36	1979.34	1979.32
42.00	DISCHG	106.99	106.96	106.93	106.89	106.86	106.83	106.80	106.77	106.73	106.70
42.00	ELEV	1979.30	1979.28	1979.26	1979.25	1979.23	1979.22	1979.20	1979.18	1979.17	1979.15
44.00	DISCHG	106.67	106.64	106.61	106.58	106.54	106.51	106.48	106.45	106.42	106.39
44.00	ELEV	1979.14	1979.12	1979.10	1979.09	1979.07	1979.06	1979.04	1979.02	1979.01	1978.99
46.00	DISCHG	106.35	106.32	106.29	106.26	106.23	106.19	106.16	106.13	106.10	106.07
46.00	ELEV	1978.98	1978.96	1978.95	1978.93	1978.91	1978.90	1978.88	1978.87	1978.85	1978.83
48.00	DISCHG	106.04	106.01	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00
48.00	ELEV	1978.82	1978.80	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30
50.00	DISCHG	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00
50.00	ELEV	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30
52.00	DISCHG	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	106.00	105.97
52.00	ELEV	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.30	1978.29
54.00	DISCHG	105.94	105.90	105.86	105.82	105.78	105.74	105.70	105.66	105.63	105.59
54.00	ELEV	1978.27	1978.25	1978.23	1978.21	1978.19	1978.17	1978.15	1978.13	1978.11	1978.09
56.00	DISCHG	105.55	105.51	105.47	105.43	105.39	105.36	105.32	105.28	105.24	105.20
56.00	ELEV	1978.07	1978.05	1978.04	1978.02	1978.00	1977.98	1977.96	1977.94	1977.92	1977.90
58.00	DISCHG	105.16	105.12	105.09	105.05	105.01	104.97	104.94	104.90	104.86	104.83
58.00	ELEV	1977.88	1977.86	1977.84	1977.82	1977.80	1977.78	1977.77	1977.75	1977.73	1977.71

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 12.0852 CFS-HRS= 71208.87 ACRE-FT= 5884.70

ENDCMP

```
CHANGES TO STANDARD CONTROL LIST FOLLOW
EXECUTIVE CONTROL CARD      106   OPERATION  ALTER

 STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,     CROSS-SECTION=  15     STRUCTURE=  0
 IN1 HYD=0     IN2 HYD=0     OUT HYD=6     DATA FIELDS=          1.7200     83.0000       .3000
 OUTPUT OPTION= 1 0 0 1 0 1ID=      107

 STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,     CROSS-SECTION=  14     STRUCTURE=  0
 IN1 HYD=0     IN2 HYD=0     OUT HYD=6     DATA FIELDS=          1.5500     82.0000       .2500
 OUTPUT OPTION= 1 0 0 1 0 1ID=      108

 STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,     CROSS-SECTION=  16     STRUCTURE=  0
 IN1 HYD=0     IN2 HYD=0     OUT HYD=6     DATA FIELDS=          2.2400     85.0000       .5900
 OUTPUT OPTION= 1 0 0 1 0 1ID=      109

 STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,     CROSS-SECTION=  13     STRUCTURE=  0
 IN1 HYD=0     IN2 HYD=0     OUT HYD=6     DATA FIELDS=          1.3500     86.0000       .2100
 OUTPUT OPTION= 1 0 0 1 0 1ID=      110

 STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,     CROSS-SECTION=  12     STRUCTURE=  0
 IN1 HYD=0     IN2 HYD=0     OUT HYD=6     DATA FIELDS=          1.4300     89.0000       .4500
 OUTPUT OPTION= 1 0 0 1 0 1ID=      112

 STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,     CROSS-SECTION=  11     STRUCTURE=  0
 IN1 HYD=0     IN2 HYD=0     OUT HYD=6     DATA FIELDS=           .6300     85.0000       .3100
 OUTPUT OPTION= 1 0 0 1 0 1ID=      113

 STANDARD CONTROL CARD,  SUBROUTINE RUNOFF,     CROSS-SECTION=  17     STRUCTURE=  0
 IN1 HYD=0     IN2 HYD=0     OUT HYD=6     DATA FIELDS=           .2100     82.0000       .2300
 OUTPUT OPTION= 1 0 0 1 0 1ID=      114
```

← These are changes
To 6-Hour CN

EXECUTIVE CONTROL CARD 115 OPERATION LIST

LISTING OF DATA IN CORE

0 WEEKS WASH FRS DESIGN HYDROLOGY

VELOCITY INCREMENT

1 CTABLE .2000

8	.0000	.0800	.1800	.2500	.3200
8	.3700	.4100	.4500	.4900	.5100
8	.5400	.5700	.5900	.6100	.6300
8	.6500	.6600	.6700	.6900	.7000
8	.7100	.7200	.7300	.7400	.7500
8	.7600	.7700	.7700	.7800	.7900
8	.7900	.8000	.8100	.8100	.8200
8	.8200	.8300	.8300	.8400	.8400
8	.8400	.8500	.8500	.8600	.8600
8	.8600	.8600	.8700	.8700	.8700
8	.8800	.8800	.8800	.8900	.8900
8	.8900	.8900	.8900	.8900	.9000
8	.9000	.9000	.9000	.9000	.9100
8	.9100	.9100	.9100	.9100	.9100
8	.9200	.9200	.9200	.9200	.9200
8	.9200	.9200	.9200	.9300	.9300

9 ENDTBL

STRUCT NO.

3 STRUCT 7

	ELEVATION	DISCHARGE	STORAGE
8	1967.0000	.0000	.0000
8	1967.5000	16.0000	16.2000
8	1968.0000	46.0000	32.5000
8	1968.5000	87.0000	49.7000
8	1969.0000	88.0000	65.0000
8	1970.5000	91.0000	129.3000
8	1972.1000	94.0000	212.9000
8	1975.2000	100.0000	421.9000
8	1976.7000	103.0000	545.9000
8	1977.8000	105.0000	641.5000
8	1978.3000	106.0000	686.7000
8	1978.8000	106.0000	734.3000
8	1979.3000	107.0000	789.7000
8	1979.8000	108.0000	830.1000
8	1984.5000	1293.0000	1357.7000
8	1987.6000	5512.0000	1774.1000
8	1990.7000	12053.0000	2243.6000
8	1996.9000	31953.0000	3357.8000

```
8                        2000.0000  45388.0000   4029.1000
9 ENDTBL


                    TIME INCREMENT
4 DIMHYD

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 PEAK K FACTOR =  484.00


                    TIME INCREMENT
5 RAINFL 1                   .5000

8                .0000       .0080       .0170       .0260       .0350
8                .0450       .0550       .0650       .0760       .0870
8                .0990       .1120       .1250       .1400       .1560
8                .1740       .1940       .2190       .2540       .3030
8                .5150       .5830       .6240       .6540       .6820
8                .7050       .7270       .7480       .7670       .7840
8                .8000       .8160       .8300       .8440       .8570
8                .8700       .8820       .8930       .9050       .9160
8                .9260       .9360       .9460       .9550       .9650
8                .9740       .9830       .9920      1.0000      1.0000
9 ENDTBL


                    TIME INCREMENT
5 RAINFL 2                   .5000

8                .0000       .0050       .0110       .0160       .0220
8                .0280       .0350       .0410       .0480       .0560
8                .0630       .0710       .0800       .0890       .0980
8                .1090       .1200       .1330       .1470       .1630
8                .1810       .2040       .2350       .2830       .6630
8                .7350       .7720       .7990       .8200       .8380
8                .8540       .8680       .8800       .8910       .9020
8                .9120       .9210       .9290       .9370       .9450
8                .9520       .9590       .9650       .9720       .9780
8                .9840       .9890       .9950      1.0000      1.0000
9 ENDTBL


                    TIME INCREMENT
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```
5 RAINFL 3                    2.4000

8                .0000        .0020        .0040        .0059        .0079
8                .0099        .0121        .0142        .0164        .0185
8                .0207        .0231        .0255        .0280        .0304
8                .0328        .0355        .0382        .0410        .0437
8                .0464        .0495        .0526        .0558        .0589
8                .0620        .0657        .0695        .0732        .0770
8                .0807        .0853        .0899        .0946        .0992
8                .1038        .1101        .1164        .1226        .1289
8                .1352        .1454        .1556        .1657        .1759
8                .1861        .1999        .2171        .2404        .2782
8                .7041        .7625        .7911        .8108        .8261
8                .8357        .8440        .8523        .8607        .8690
8                .8773        .8826        .8879        .8932        .8985
8                .9038        .9079        .9121        .9162        .9204
8                .9245        .9279        .9313        .9347        .9381
8                .9415        .9444        .9473        .9502        .9531
8                .9560        .9586        .9611        .9637        .9662
8                .9688        .9711        .9734        .9756        .9779
8                .9802        .9823        .9843        .9864        .9884
8                .9905        .9929        .9952        .9976       1.0000
9 ENDTBL

                   TIME INCREMENT
5 RAINFL 4                    .2500

8                .0000        .0060        .0127        .0194        .0261
8                .0402        .0544        .0693        .0886        .5745
8                .7042        .7623        .8145        .8547        .8883
8                .9218        .9359        .9471        .9583        .9672
8                .9769        .9836        .9897        .9948       1.0000
9 ENDTBL

                   TIME INCREMENT
5 RAINFL 5                    .5000

8                .0000        .0040        .0080        .0110        .0160
8                .0210        .0270        .0340        .0440        .0550
8                .0700        .0880        .1080        .1370        .1720
8                .2170        .2730        .3410        .4200        .4920
8                .5600        .6180        .6720        .7190        .7530
8                .7820        .8070        .8270        .8450        .8600
8                .8730        .8850        .8950        .9030        .9130
8                .9210        .9300        .9350        .9420        .9490
8                .9540        .9600        .9670        .9720        .9780
8                .9820        .9890        .9930       1.0000       1.0000
9 ENDTBL
```

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PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
    2.46                          15035.295                      (NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=   4.0072        CFS-HRS=    14249.63        ACRE-FT=    1177.59


SUBROUTINE REACH     CROSS SECTION 113
LENGTH=   4300.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00

AVERAGE WATER VELOCITY=   6.800       AVERAGE ROUTING COEFF=  .8000       NUMBER OF ROUTINGS=  1.41


SUBROUTINE RUNOFF    CROSS SECTION  13
AREA=   1.35     INPUT RUNOFF CURVE=  86.0     TIME OF CONCENTRATION=   .21

PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
    2.31                           6388.429                    (RUNOFF)
    4.98                            185.212                    (RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=   4.2749        CFS-HRS=     3724.53        ACRE-FT=     307.80


SUBROUTINE ADDHYD    CROSS SECTION  13
INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
    2.61                          16490.802                      (NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=   4.0606        CFS-HRS=    17977.20        ACRE-FT=    1485.64


SUBROUTINE REACH     CROSS SECTION 112
LENGTH=   4600.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00

AVERAGE WATER VELOCITY=   6.800       AVERAGE ROUTING COEFF=  .8000       NUMBER OF ROUTINGS=  1.50


SUBROUTINE RUNOFF    CROSS SECTION  12
AREA=   1.43     INPUT RUNOFF CURVE=  89.0     TIME OF CONCENTRATION=   .45

PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
    2.46                           4862.536                    (RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=   4.5927        CFS-HRS=     4238.49        ACRE-FT=     350.27


SUBROUTINE ADDHYD    CROSS SECTION  12
INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
    2.76                          18461.292                      (NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=   4.1519        CFS-HRS=    22213.23        ACRE-FT=    1835.70


SUBROUTINE REACH     CROSS SECTION 111
LENGTH=   1800.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00
```

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .59

SUBROUTINE RUNOFF CROSS SECTION 11
AREA= .63 INPUT RUNOFF CURVE= 85.0 TIME OF CONCENTRATION= .31

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.38	2341.325	(RUNOFF)
4.98	84.786	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.1640 CFS-HRS= 1692.99 ACRE-FT= 139.91

SUBROUTINE ADDHYD CROSS SECTION 111
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.81	18891.893	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.1531 CFS-HRS= 23908.14 ACRE-FT= 1975.77

SUBROUTINE SAVMOV CROSS SECTION 111
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 17
AREA= .21 INPUT RUNOFF CURVE= 82.0 TIME OF CONCENTRATION= .23

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.33	833.689	(RUNOFF)
4.98	27.692	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 3.8502 CFS-HRS= 521.81 ACRE-FT= 43.12

SUBROUTINE ADDHYD CROSS SECTION 117
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.81	19077.182	(NULL)

HYDROGRAPH, TZERO= .00 DELTA T= .10 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
1.00	DISCHG	.00	.00	.00	.01	.21	1.44	4.97	11.95	24.36	45.11
2.00	DISCHG	87.02	565.13	2545.93	6172.24	10226.61	13823.10	16546.02	18293.40	19071.41	18536.25
3.00	DISCHG	16811.43	14530.36	12242.29	10283.79	8740.84	7574.25	6698.07	6028.56	5507.27	5045.41
4.00	DISCHG	4602.50	4164.61	3723.79	3292.08	2873.40	2489.13	2165.09	1907.06	1711.99	1569.14
5.00	DISCHG	1465.80	1385.26	1311.18	1241.87	1174.52	1109.18	1044.00	976.74	912.08	854.46
6.00	DISCHG	805.81	756.55	692.08	615.13	527.28	434.03	340.91	251.79	174.44	114.78
7.00	DISCHG	73.04	45.79	28.68	18.07	11.45	7.29	4.68	3.01	1.93	1.21
8.00	DISCHG	.73	.42	.21	.09	.00					

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 4.1461 CFS-HRS= 24429.95 ACRE-FT= 2018.89

SUBROUTINE SAVMOV CROSS SECTION 117

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

SUBROUTINE RESVOR STRUCTURE 7
SURFACE ELEVATION= 1967.00

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
4.33	3179.490	1985.89

HYDROGRAPH, TZERO= .00 DELTA T= .10 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
1.00	DISCHG	.00	.00	.00	.00	.00	.01	.03	.10	.25	.53
1.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.01	1967.02
2.00	DISCHG	1.06	3.70	16.59	87.16	90.53	94.14	97.72	101.54	104.95	107.10
2.00	ELEV	1967.03	1967.12	1967.51	1968.58	1970.26	1972.17	1974.02	1975.97	1977.77	1979.35
3.00	DISCHG	350.02	631.79	866.37	1057.58	1213.07	1501.84	1954.68	2309.01	2587.00	2803.15
3.00	ELEV	1980.76	1981.88	1982.81	1983.57	1984.18	1984.65	1984.99	1985.25	1985.45	1985.61
4.00	DISCHG	2965.56	3079.53	3149.02	3177.87	3170.22	3130.93	3066.32	2983.52	2889.16	2788.81
4.00	ELEV	1985.73	1985.81	1985.86	1985.88	1985.88	1985.85	1985.80	1985.74	1985.67	1985.60
5.00	DISCHG	2686.63	2585.28	2485.85	2388.66	2293.78	2201.20	2110.81	2022.37	1935.73	1851.14
5.00	ELEV	1985.52	1985.45	1985.38	1985.31	1985.24	1985.17	1985.10	1985.04	1984.97	1984.91
6.00	DISCHG	1769.08	1689.68	1612.10	1535.06	1457.59	1379.08	1299.38	1276.01	1256.46	1236.02
6.00	ELEV	1984.85	1984.79	1984.73	1984.68	1984.62	1984.56	1984.50	1984.43	1984.36	1984.27
7.00	DISCHG	1215.01	1193.76	1172.49	1151.35	1130.45	1109.83	1089.53	1069.56	1049.94	1030.66
7.00	ELEV	1984.19	1984.11	1984.02	1983.94	1983.86	1983.77	1983.69	1983.61	1983.54	1983.46
8.00	DISCHG	1011.72	993.12	974.86	956.94	939.34	922.06	905.10	888.46	872.12	856.08
8.00	ELEV	1983.38	1983.31	1983.24	1983.17	1983.10	1983.03	1982.96	1982.90	1982.83	1982.77
9.00	DISCHG	840.33	824.88	809.71	794.82	780.20	765.85	751.77	737.94	724.37	711.05
9.00	ELEV	1982.70	1982.64	1982.58	1982.52	1982.47	1982.41	1982.35	1982.30	1982.24	1982.19
10.00	DISCHG	697.97	685.13	672.53	660.16	648.02	636.10	624.40	612.92	601.65	590.58
10.00	ELEV	1982.14	1982.09	1982.04	1981.99	1981.94	1981.89	1981.85	1981.80	1981.76	1981.71
11.00	DISCHG	579.72	569.06	558.59	548.32	538.24	528.34	518.62	509.08	499.72	490.53
11.00	ELEV	1981.67	1981.63	1981.59	1981.55	1981.51	1981.47	1981.43	1981.39	1981.35	1981.32
12.00	DISCHG	481.51	472.65	463.96	455.43	447.05	438.83	430.76	422.83	415.06	407.42
12.00	ELEV	1981.28	1981.25	1981.21	1981.18	1981.14	1981.11	1981.08	1981.05	1981.02	1980.99
13.00	DISCHG	399.93	392.58	385.36	378.27	371.31	364.48	357.78	351.20	344.74	338.40
13.00	ELEV	1980.96	1980.93	1980.90	1980.87	1980.84	1980.82	1980.79	1980.76	1980.74	1980.71
14.00	DISCHG	332.18	326.07	320.07	314.18	308.41	302.73	297.17	291.70	286.34	281.07
14.00	ELEV	1980.69	1980.66	1980.64	1980.62	1980.59	1980.57	1980.55	1980.53	1980.51	1980.49
15.00	DISCHG	275.90	270.83	265.85	260.96	256.16	251.45	246.82	242.28	237.83	233.45
15.00	ELEV	1980.47	1980.45	1980.43	1980.41	1980.39	1980.37	1980.35	1980.33	1980.31	1980.30
16.00	DISCHG	229.16	224.94	220.81	216.75	212.76	208.85	205.01	201.24	197.53	193.90
16.00	ELEV	1980.28	1980.26	1980.25	1980.23	1980.22	1980.20	1980.18	1980.17	1980.16	1980.14
17.00	DISCHG	190.34	186.83	183.40	180.03	176.71	173.46	170.27	167.14	164.07	161.05
17.00	ELEV	1980.13	1980.11	1980.10	1980.09	1980.07	1980.06	1980.05	1980.03	1980.02	1980.01
18.00	DISCHG	158.09	155.18	152.33	149.53	146.78	144.08	141.43	138.83	136.27	133.77
18.00	ELEV	1980.00	1979.99	1979.98	1979.96	1979.95	1979.94	1979.93	1979.92	1979.91	1979.90
19.00	DISCHG	131.31	128.89	126.52	124.19	121.91	119.67	117.47	115.31	113.19	111.10
19.00	ELEV	1979.89	1979.88	1979.87	1979.86	1979.86	1979.85	1979.84	1979.83	1979.82	1979.81
20.00	DISCHG	109.06	107.99	107.97	107.95	107.92	107.90	107.88	107.86	107.83	107.81
20.00	ELEV	1979.80	1979.79	1979.78	1979.77	1979.76	1979.75	1979.74	1979.73	1979.72	1979.71
21.00	DISCHG	107.79	107.77	107.75	107.72	107.70	107.68	107.66	107.64	107.61	107.59
21.00	ELEV	1979.70	1979.68	1979.67	1979.66	1979.65	1979.64	1979.63	1979.62	1979.61	1979.60
22.00	DISCHG	107.57	107.55	107.53	107.50	107.48	107.46	107.44	107.42	107.39	107.37
22.00	ELEV	1979.59	1979.57	1979.56	1979.55	1979.54	1979.53	1979.52	1979.51	1979.50	1979.49
23.00	DISCHG	107.35	107.33	107.31	107.28	107.26	107.24	107.22	107.20	107.18	107.15

23.00	ELEV	1979.48	1979.46	1979.45	1979.44	1979.43	1979.42	1979.41	1979.40	1979.39	1979.38
24.00	DISCHG	107.13	107.11	107.09	107.07	107.04	107.02	107.00	106.98	106.97	106.95
24.00	ELEV	1979.37	1979.35	1979.34	1979.33	1979.32	1979.31	1979.30	1979.29	1979.28	1979.28
25.00	DISCHG	106.94	106.92	106.90	106.89	106.87	106.86	106.84	106.82	106.81	106.79
25.00	ELEV	1979.27	1979.26	1979.25	1979.24	1979.24	1979.23	1979.22	1979.21	1979.20	1979.20
26.00	DISCHG	106.78	106.76	106.74	106.73	106.71	106.70	106.68	106.67	106.65	106.63
26.00	ELEV	1979.19	1979.18	1979.17	1979.16	1979.16	1979.15	1979.14	1979.13	1979.12	1979.12
27.00	DISCHG	106.62	106.60	106.59	106.57	106.55	106.54	106.52	106.51	106.49	106.47
27.00	ELEV	1979.11	1979.10	1979.09	1979.08	1979.08	1979.07	1979.06	1979.05	1979.05	1979.04
28.00	DISCHG	106.46	106.44	106.43	106.41	106.40	106.38	106.36	106.35	106.33	106.32
28.00	ELEV	1979.03	1979.02	1979.01	1979.01	1979.00	1978.99	1978.98	1978.97	1978.97	1978.96
29.00	DISCHG	106.30	106.28	106.27	106.25	106.24	106.22	106.20	106.19	106.17	106.16
29.00	ELEV	1978.95	1978.94	1978.93	1978.93	1978.92	1978.91	1978.90	1978.89	1978.89	1978.88

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 2.6202 CFS-HRS= 15438.89 ACRE-FT= 1275.87

ENDCMP

6-Hr FCH

PASS= 8

EXECUTIVE CONTROL CARD 119 OPERATION COMPUT. FROM XSECTN/STRUCT 15/ 0 TO XSECTN/STRUCT 0/ 7
STARTING TIME= .00 RAIN DEPTH= 13.42 RAIN DURATION= 1.00 RAIN TABLE NO.= 4 SOIL CONDITION= 2
ALTERNATE NO.= 1 STORM NO.= 8

SUBROUTINE RUNOFF CROSS SECTION 15
AREA= 1.72 INPUT RUNOFF CURVE= 83.0 TIME OF CONCENTRATION= .30

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.36	18073.719	(RUNOFF)
4.98	553.951	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 11.2086 CFS-HRS= 12441.90 ACRE-FT= 1028.20

SUBROUTINE REACH CROSS SECTION 114
LENGTH= 2700.00 INPUT COEFFICIENT= .8000 INPUT ROUTINGS= .00

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .88

SUBROUTINE RUNOFF CROSS SECTION 14
AREA= 1.55 INPUT RUNOFF CURVE= 82.0 TIME OF CONCENTRATION= .25

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.32	17946.540	(RUNOFF)
4.98	499.666	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 11.0516 CFS-HRS= 11055.16 ACRE-FT= 913.60

SUBROUTINE ADDHYD CROSS SECTION 14
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.40	31569.183	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 11.1375 CFS-HRS= 23504.22 ACRE-FT= 1942.39

SUBROUTINE SAVMOV CROSS SECTION 14
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 16
AREA= 2.24 INPUT RUNOFF CURVE= 85.0 TIME OF CONCENTRATION= .59

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.56	16275.560	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 11.4897 CFS-HRS= 16609.84 ACRE-FT= 1372.64

SUBROUTINE ADDHYD CROSS SECTION 114
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

```
PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
    2.44                         45550.602                      (NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA=  11.2807        CFS-HRS=    40114.06        ACRE-FT=    3315.03


SUBROUTINE REACH     CROSS SECTION 113
           LENGTH=   4300.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00

           AVERAGE WATER VELOCITY=   6.800       AVERAGE ROUTING COEFF=  .8000       NUMBER OF ROUTINGS=  1.41


SUBROUTINE RUNOFF    CROSS SECTION  13
           AREA=   1.35     INPUT RUNOFF CURVE=  86.0     TIME OF CONCENTRATION=   .21

           PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
              2.30                          17837.679                     (RUNOFF)
              4.98                            442.722                     (RUNOFF)

           TOTAL WATER, IN INCHES ON DRAINAGE AREA=  11.6381        CFS-HRS=    10139.66        ACRE-FT=     837.94


SUBROUTINE ADDHYD    CROSS SECTION  13
           INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

           PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
              2.59                          48533.005                      (NULL)

           TOTAL WATER, IN INCHES ON DRAINAGE AREA=  11.3539        CFS-HRS=    50266.43        ACRE-FT=    4154.02


SUBROUTINE REACH     CROSS SECTION 112
           LENGTH=   4600.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00

           AVERAGE WATER VELOCITY=   6.800       AVERAGE ROUTING COEFF=  .8000       NUMBER OF ROUTINGS=  1.50


SUBROUTINE RUNOFF    CROSS SECTION  12
           AREA=   1.43     INPUT RUNOFF CURVE=  89.0     TIME OF CONCENTRATION=   .45

           PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
              2.45                          13244.597                     (RUNOFF)

           TOTAL WATER, IN INCHES ON DRAINAGE AREA=  12.0240        CFS-HRS=    11096.68        ACRE-FT=     917.03


SUBROUTINE ADDHYD    CROSS SECTION  12
           INPUT HYDROGRAPHS= 5,6     OUTPUT HYDROGRAPH= 7

           PEAK TIMES                    PEAK DISCHARGES                PEAK ELEVATIONS
              2.73                          53710.673                      (NULL)

           TOTAL WATER, IN INCHES ON DRAINAGE AREA=  11.4691        CFS-HRS=    61361.04        ACRE-FT=    5070.88


SUBROUTINE REACH     CROSS SECTION 111
           LENGTH=   1800.00     INPUT COEFFICIENT=   .8000     INPUT ROUTINGS=   .00
```

AVERAGE WATER VELOCITY= 6.800 AVERAGE ROUTING COEFF= .8000 NUMBER OF ROUTINGS= .59

SUBROUTINE RUNOFF CROSS SECTION 11
AREA= .63 INPUT RUNOFF CURVE= 85.0 TIME OF CONCENTRATION= .31

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.36	6710.256	(RUNOFF)
4.98	203.930	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 11.4914 CFS-HRS= 4672.20 ACRE-FT= 386.11

SUBROUTINE ADDHYD CROSS SECTION 111
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.79	54805.683	(NULL)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 11.4714 CFS-HRS= 66037.63 ACRE-FT= 5457.35

SUBROUTINE SAVMOV CROSS SECTION 111
INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 5

SUBROUTINE RUNOFF CROSS SECTION 17
AREA= .21 INPUT RUNOFF CURVE= 82.0 TIME OF CONCENTRATION= .23

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.31	2541.438	(RUNOFF)
4.98	67.937	(RUNOFF)

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 11.0709 CFS-HRS= 1500.42 ACRE-FT= 123.99

SUBROUTINE ADDHYD CROSS SECTION 117
INPUT HYDROGRAPHS= 5,6 OUTPUT HYDROGRAPH= 7

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
2.78	55309.647	(NULL)

HYDROGRAPH, TZERO= .00 DELTA T= .10 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.15	1.09
1.00	DISCHG	4.16	13.27	39.21	94.68	182.91	295.32	425.85	578.45	760.07	983.68
2.00	DISCHG	1307.57	3313.32	9837.56	20336.54	31626.02	41574.10	49173.95	53879.35	55253.05	52521.35
3.00	DISCHG	46512.59	39281.00	32409.34	26737.01	22387.86	19165.58	16783.59	14989.03	13608.89	12408.51
4.00	DISCHG	11280.46	10183.88	9090.70	8023.56	6990.47	6044.41	5248.58	4616.66	4140.34	3792.30
5.00	DISCHG	3540.41	3343.70	3163.11	2995.03	2832.38	2674.56	2516.76	2353.75	2197.19	2057.78
6.00	DISCHG	1940.02	1820.83	1665.51	1481.18	1271.08	1047.34	822.85	607.49	420.55	276.48
7.00	DISCHG	175.78	110.11	68.93	43.41	27.49	17.51	11.23	7.23	4.62	2.90
8.00	DISCHG	1.76	1.00	.51	.22	.08	.00				

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 11.4622 CFS-HRS= 67538.05 ACRE-FT= 5581.34

SUBROUTINE SAVMOV CROSS SECTION 117

INPUT HYDROGRAPH= 7 OUTPUT HYDROGRAPH= 6

SUBROUTINE RESVOR STRUCTURE 7
SURFACE ELEVATION= 1967.00

PEAK TIMES	PEAK DISCHARGES	PEAK ELEVATIONS
3.36	24317.582	1994.52

HYDROGRAPH, TZERO= .00 DELTA T= .10 DRAINAGE AREA= 9.13

TIME											
.00	DISCHG	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01
.00	ELEV	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00	1967.00
1.00	DISCHG	.03	.10	.31	.85	1.97	3.90	6.80	10.83	16.33	29.25
1.00	ELEV	1967.00	1967.00	1967.01	1967.03	1967.06	1967.12	1967.21	1967.34	1967.51	1967.72
2.00	DISCHG	46.13	87.09	89.85	94.45	100.50	106.18	749.31	2998.11	7720.97	12929.44
2.00	ELEV	1968.00	1968.55	1969.93	1972.33	1975.45	1978.89	1982.34	1985.75	1988.65	1990.97
3.00	DISCHG	17958.80	21386.80	23374.27	24226.38	24272.57	23792.03	22992.35	22015.55	20954.82	19862.54
3.00	ELEV	1992.54	1993.61	1994.23	1994.49	1994.51	1994.36	1994.11	1993.80	1993.47	1993.13
4.00	DISCHG	18760.36	17656.80	16554.43	15455.11	14362.56	13284.16	12234.27	11401.63	10637.01	9910.76
4.00	ELEV	1992.79	1992.45	1992.10	1991.76	1991.42	1991.08	1990.76	1990.39	1990.03	1989.68
5.00	DISCHG	9230.93	8600.68	8018.52	7480.75	6983.53	6523.00	6095.42	5696.93	5373.54	5112.65
5.00	ELEV	1989.36	1989.06	1988.79	1988.53	1988.30	1988.08	1987.88	1987.69	1987.50	1987.31
6.00	DISCHG	4862.39	4622.73	4391.29	4164.81	3940.68	3717.13	3493.54	3270.23	3048.71	2831.70
6.00	ELEV	1987.12	1986.95	1986.78	1986.61	1986.45	1986.28	1986.12	1985.95	1985.79	1985.63
7.00	DISCHG	2622.28	2423.02	2235.47	2060.32	1897.58	1746.87	1607.63	1479.16	1360.76	1283.55
7.00	ELEV	1985.48	1985.33	1985.19	1985.06	1984.94	1984.83	1984.73	1984.64	1984.55	1984.46
8.00	DISCHG	1259.98	1236.84	1214.10	1191.78	1169.87	1148.35	1127.23	1106.50	1086.15	1066.17
8.00	ELEV	1984.37	1984.28	1984.19	1984.10	1984.01	1983.93	1983.84	1983.76	1983.68	1983.60
9.00	DISCHG	1046.57	1027.32	1008.42	989.88	971.67	953.80	936.26	919.04	902.14	885.55
9.00	ELEV	1983.52	1983.45	1983.37	1983.30	1983.23	1983.15	1983.09	1983.02	1982.95	1982.88
10.00	DISCHG	869.26	853.27	837.58	822.18	807.05	792.21	777.64	763.34	749.30	735.52
10.00	ELEV	1982.82	1982.76	1982.69	1982.63	1982.57	1982.51	1982.46	1982.40	1982.34	1982.29
11.00	DISCHG	721.99	708.71	695.68	682.89	670.33	658.00	645.90	634.02	622.36	610.91
11.00	ELEV	1982.24	1982.18	1982.13	1982.08	1982.03	1981.98	1981.93	1981.89	1981.84	1981.79
12.00	DISCHG	599.68	588.65	577.82	567.19	556.76	546.52	536.47	526.60	516.92	507.41
12.00	ELEV	1981.75	1981.71	1981.66	1981.62	1981.58	1981.54	1981.50	1981.46	1981.42	1981.38
13.00	DISCHG	498.08	488.92	479.93	471.10	462.44	453.93	445.58	437.39	429.35	421.45
13.00	ELEV	1981.35	1981.31	1981.28	1981.24	1981.21	1981.17	1981.14	1981.11	1981.07	1981.04
14.00	DISCHG	413.70	406.09	398.62	391.29	384.09	377.03	370.10	363.29	356.61	350.05
14.00	ELEV	1981.01	1980.98	1980.95	1980.92	1980.90	1980.87	1980.84	1980.81	1980.79	1980.76
15.00	DISCHG	343.61	337.29	331.09	325.00	319.02	313.15	307.39	301.74	296.19	290.74
15.00	ELEV	1980.73	1980.71	1980.68	1980.66	1980.64	1980.61	1980.59	1980.57	1980.55	1980.52
16.00	DISCHG	285.40	280.15	275.00	269.94	264.97	260.10	255.32	250.62	246.01	241.49
16.00	ELEV	1980.50	1980.48	1980.46	1980.44	1980.42	1980.40	1980.38	1980.37	1980.35	1980.33
17.00	DISCHG	237.05	232.69	228.41	224.21	220.08	216.04	212.06	208.16	204.33	200.58
17.00	ELEV	1980.31	1980.29	1980.28	1980.26	1980.24	1980.23	1980.21	1980.20	1980.18	1980.17
18.00	DISCHG	196.89	193.27	189.71	186.22	182.80	179.44	176.14	172.90	169.72	166.60
18.00	ELEV	1980.15	1980.14	1980.12	1980.11	1980.10	1980.08	1980.07	1980.06	1980.04	1980.03
19.00	DISCHG	163.53	160.52	157.57	154.67	151.83	149.04	146.30	143.60	140.96	138.37
19.00	ELEV	1980.02	1980.01	1980.00	1979.99	1979.97	1979.96	1979.95	1979.94	1979.93	1979.92
20.00	DISCHG	135.83	133.33	130.88	128.47	126.11	123.79	121.51	119.28	117.08	114.93
20.00	ELEV	1979.91	1979.90	1979.89	1979.88	1979.87	1979.86	1979.85	1979.84	1979.84	1979.83
21.00	DISCHG	112.82	110.74	108.70	107.99	107.96	107.94	107.92	107.90	107.88	107.85
21.00	ELEV	1979.82	1979.81	1979.80	1979.79	1979.78	1979.77	1979.76	1979.75	1979.74	1979.73
22.00	DISCHG	107.83	107.81	107.79	107.76	107.74	107.72	107.70	107.68	107.65	107.63
22.00	ELEV	1979.72	1979.70	1979.69	1979.68	1979.67	1979.66	1979.65	1979.64	1979.63	1979.62
23.00	DISCHG	107.61	107.59	107.57	107.54	107.52	107.50	107.48	107.46	107.43	107.41

23.00	ELEV	1979.61	1979.59	1979.58	1979.57	1979.56	1979.55	1979.54	1979.53	1979.52	1979.51
24.00	DISCHG	107.39	107.37	107.35	107.32	107.30	107.28	107.26	107.24	107.22	107.19
24.00	ELEV	1979.50	1979.48	1979.47	1979.46	1979.45	1979.44	1979.43	1979.42	1979.41	1979.40
25.00	DISCHG	107.17	107.15	107.13	107.11	107.08	107.06	107.04	107.02	107.00	106.98
25.00	ELEV	1979.39	1979.37	1979.36	1979.35	1979.34	1979.33	1979.32	1979.31	1979.30	1979.29
26.00	DISCHG	106.97	106.95	106.93	106.92	106.90	106.89	106.87	106.85	106.84	106.82
26.00	ELEV	1979.28	1979.27	1979.27	1979.26	1979.25	1979.24	1979.23	1979.23	1979.22	1979.21
27.00	DISCHG	106.81	106.79	106.77	106.76	106.74	106.73	106.71	106.69	106.68	106.66
27.00	ELEV	1979.20	1979.19	1979.19	1979.18	1979.17	1979.16	1979.16	1979.15	1979.14	1979.13
28.00	DISCHG	106.65	106.63	106.61	106.60	106.58	106.57	106.55	106.54	106.52	106.50
28.00	ELEV	1979.12	1979.12	1979.11	1979.10	1979.09	1979.08	1979.08	1979.07	1979.06	1979.05
29.00	DISCHG	106.49	106.47	106.46	106.44	106.42	106.41	106.39	106.38	106.36	106.34
29.00	ELEV	1979.04	1979.04	1979.03	1979.02	1979.01	1979.00	1979.00	1978.99	1978.98	1978.97

TOTAL WATER, IN INCHES ON DRAINAGE AREA= 9.9133 CFS-HRS= 58411.36 ACRE-FT= 4827.11

ENDCMP

SUMMARY TABLE 1

ALT	STORM	ID	DA SQ-MI.	RAIN TBLE	AMC	DELTA-T HRS.	TZERO HRS.	PRECIP IN.	PRECIP DURATION	PEAK-Q CFS	PEAK-TIME	PEAK-ELEV	RUNOFF IN.	CSM
1	1	15	1.72	3	2	1.00	.00	2.85	237.60	566.91	119.45	.00	2.91	329.60
1	1	14	1.55	3	2	1.00	.00	2.85	237.60	508.36	119.48	.00	2.93	327.97
1	1	14	3.27	3	2	1.00	.00	2.85	237.60	1170.54	119.50	.00	2.94	357.96
1	1	16	2.24	3	2	1.00	.00	2.85	237.60	799.15	119.50	.00	2.82	355.77
1	1	114	5.51	3	2	1.00	.00	2.85	237.60	1969.70	119.50	.00	2.89	357.48
1	1	13	1.35	3	2	1.00	.00	2.85	237.60	440.59	119.33	.00	2.94	325.36
1	1	13	6.86	3	2	1.00	.00	2.85	237.60	2404.90	119.54	.00	2.92	350.57
1	1	12	1.43	3	2	1.00	.00	2.85	237.60	483.20	119.48	.00	2.86	337.90
1	1	12	8.29	3	2	1.00	.00	2.85	237.60	2850.53	119.58	.00	2.93	343.85
1	1	11	.63	3	2	1.00	.00	2.85	237.60	208.18	119.49	.00	2.91	330.44
1	1	111	8.92	3	2	1.00	.00	2.85	237.60	3042.56	119.59	.00	2.94	341.09
1	1	17	.21	3	2	1.00	.00	2.85	237.60	68.64	119.37	.00	2.94	326.84
1	1	117	9.13	3	2	1.00	.00	2.85	237.60	3117.78	119.59	.00	2.94	341.49
1	1	-7	9.13	3	2	1.00	.00	2.85	237.60	116.39	128.23	1979.83	3.00	12.75
1	2	15	1.72	2	2	.20	.00	1.45	24.00	190.29	12.10	.00	.26	110.64
1	2	14	1.55	2	2	.20	.00	1.45	24.00	162.16	12.06	.00	.23	104.62
1	2	14	3.27	2	2	.20	.00	1.45	24.00	298.87	12.15	.00	.25	91.40
1	2	16	2.24	2	2	.20	.00	1.45	24.00	247.58	12.27	.00	.32	110.53
1	2	114	5.51	2	2	.20	.00	1.45	24.00	534.09	12.21	.00	.28	96.93
1	2	13	1.35	2	2	.20	.00	1.45	24.00	263.24	12.01	.00	.35	194.99
1	2	13	6.86	2	2	.20	.00	1.45	24.00	576.25	12.33	.00	.29	84.00
1	2	12	1.43	2	2	.20	.00	1.45	24.00	292.50	12.17	.00	.46	204.55
1	2	12	8.29	2	2	.20	.00	1.45	24.00	728.75	12.35	.00	.32	87.91
1	2	11	.63	2	2	.20	.00	1.45	24.00	91.25	12.09	.00	.32	144.85
1	2	111	8.92	2	2	.20	.00	1.45	24.00	762.95	12.42	.00	.32	85.53
1	2	17	.21	2	2	.20	.00	1.45	24.00	22.85	12.05	.00	.23	108.80
1	2	117	9.13	2	2	.20	.00	1.45	24.00	771.69	12.41	.00	.32	84.52
1	2	-7	9.13	2	2	.20	.00	1.45	24.00	88.79	17.39	1969.40	.31	9.73
1	3	15	1.72	2	2	.20	.00	2.58	24.00	851.73	12.04	.00	.94	495.19
1	3	14	1.55	2	2	.20	.00	2.58	24.00	775.22	12.01	.00	.89	500.14
1	3	14	3.27	2	2	.20	.00	2.58	24.00	1467.65	12.05	.00	.92	448.82
1	3	16	2.24	2	2	.20	.00	2.58	24.00	971.82	12.22	.00	1.06	433.85
1	3	114	5.51	2	2	.20	.00	2.58	24.00	2266.45	12.11	.00	.97	411.33
1	3	13	1.35	2	2	.20	.00	2.58	24.00	909.03	11.97	.00	1.10	673.36
1	3	13	6.86	2	2	.20	.00	2.58	24.00	2490.44	12.21	.00	1.00	363.04
1	3	12	1.43	2	2	.20	.00	2.58	24.00	879.63	12.13	.00	1.31	615.13
1	3	12	8.29	2	2	.20	.00	2.58	24.00	3054.32	12.29	.00	1.05	368.43
1	3	11	.63	2	2	.20	.00	2.58	24.00	351.05	12.03	.00	1.06	557.22
1	3	111	8.92	2	2	.20	.00	2.58	24.00	3069.12	12.35	.00	1.05	344.07
1	3	17	.21	2	2	.20	.00	2.58	24.00	107.47	12.00	.00	.88	511.75
1	3	117	9.13	2	2	.20	.00	2.58	24.00	3106.43	12.34	.00	1.05	340.24
1	3	-7	9.13	2	2	.20	.00	2.58	24.00	99.57	24.27	1974.98	.78	10.91
1	4	15	1.72	2	2	.20	.00	4.05	24.00	1945.26	12.01	.00	2.09	1130.97
1	4	14	1.55	2	2	.20	.00	4.05	24.00	1799.50	11.99	.00	2.00	1160.96
1	4	14	3.27	2	2	.20	.00	4.05	24.00	3427.72	12.03	.00	2.04	1048.23
1	4	16	2.24	2	2	.20	.00	4.05	24.00	2125.73	12.20	.00	2.24	948.99
1	4	114	5.51	2	2	.20	.00	4.05	24.00	5291.63	12.08	.00	2.12	960.37
1	4	13	1.35	2	2	.20	.00	4.05	24.00	1899.09	11.96	.00	2.30	1406.73
1	4	13	6.86	2	2	.20	.00	4.05	24.00	5666.46	12.18	.00	2.16	825.01
1	4	12	1.43	2	2	.20	.00	4.05	24.00	1742.89	12.10	.00	2.60	1218.80
1	4	12	8.29	2	2	.20	.00	4.05	24.00	6780.47	12.28	.00	2.24	817.91
1	4	11	.63	2	2	.20	.00	4.05	24.00	763.21	12.01	.00	2.25	1211.45
1	4	111	8.92	2	2	.20	.00	4.05	24.00	6800.91	12.33	.00	2.24	762.43

PSH

2-YEAR 24-Hour

10-YEAR 24-Hour

100-YEAR 24-Hour

	1	4	17	.21	2	2	.20	.00	4.05	24.00	248.35	11.98	.00	1.99	1182.61
	1	4	117	9.13	2	2	.20	.00	4.05	24.00	6886.95	12.31	.00	2.23	754.32
	1	4	-7	9.13	2	2	.20	.00	4.05	24.00	248.25	22.45	1980.36	1.08	27.19
	1	5	15	1.72	5	2	.20	.00	7.07	24.00	887.66	9.10	.00	4.75	516.08
	1	5	14	1.55	5	2	.20	.00	7.07	24.00	782.96	9.06	.00	4.64	505.13
	1	5	14	3.27	5	2	.20	.00	7.07	24.00	1647.13	9.23	.00	4.70	503.71
	1	5	16	2.24	5	2	.20	.00	7.07	24.00	1183.81	9.57	.00	4.97	528.49
24-Hour ESH	1	5	114	5.51	5	2	.20	.00	7.07	24.00	2829.24	9.55	.00	4.81	513.47
	1	5	13	1.35	5	2	.20	.00	7.07	24.00	761.65	9.00	.00	5.08	564.19
	1	5	13	6.86	5	2	.20	.00	7.07	24.00	3549.90	9.60	.00	4.86	517.48
	1	5	12	1.43	5	2	.20	.00	7.07	24.00	839.67	9.22	.00	5.42	587.18
	1	5	12	8.29	5	2	.20	.00	7.07	24.00	4352.14	9.73	.00	4.96	524.99
	1	5	11	.63	5	2	.20	.00	7.07	24.00	342.12	9.09	.00	4.97	543.04
	1	5	111	8.92	5	2	.20	.00	7.07	24.00	4677.51	9.82	.00	4.96	524.38
	1	5	17	.21	5	2	.20	.00	7.07	24.00	106.32	9.04	.00	4.64	506.29
	1	5	117	9.13	5	2	.20	.00	7.07	24.00	4780.14	9.82	.00	4.95	523.56
	1	5	-7	9.13	5	2	.20	.00	7.07	24.00	1922.17	13.29	1984.96	3.71	210.53
	1	6	15	1.72	5	2	.20	.00	15.80	24.00	2481.41	9.03	.00	13.12	1442.68
	1	6	14	1.55	5	2	.20	.00	15.80	24.00	2226.82	9.00	.00	12.97	1436.66
	1	6	14	3.27	5	2	.20	.00	15.80	24.00	4663.95	9.06	.00	13.05	1426.28
	1	6	16	2.24	5	2	.20	.00	15.80	24.00	3194.73	9.27	.00	13.42	1426.22
	1	6	114	5.51	5	2	.20	.00	15.80	24.00	7781.93	9.16	.00	13.20	1412.33
24-Hour FBH	1	6	13	1.35	5	2	.20	.00	15.80	24.00	2024.01	8.96	.00	13.55	1499.26
	1	6	13	6.86	5	2	.20	.00	15.80	24.00	9618.57	9.32	.00	13.27	1402.12
	1	6	12	1.43	5	2	.20	.00	15.80	24.00	2129.73	9.15	.00	13.97	1489.32
	1	6	12	8.29	5	2	.20	.00	15.80	24.00	11642.72	9.49	.00	13.39	1404.43
	1	6	11	.63	5	2	.20	.00	15.80	24.00	924.61	9.03	.00	13.41	1467.64
	1	6	111	8.92	5	2	.20	.00	15.80	24.00	12483.96	9.55	.00	13.39	1399.55
	1	6	17	.21	5	2	.20	.00	15.80	24.00	302.31	8.98	.00	12.97	1439.59
	1	6	117	9.13	5	2	.20	.00	15.80	24.00	12766.72	9.54	.00	13.38	1398.33
	1	6	-7	9.13	5	2	.20	.00	15.80	24.00	10489.61	10.90	1989.96	12.09	1148.92
	1	7	15	1.72	4	2	.10	.00	5.86	6.00	6049.65	2.38	.00	3.95	3517.24
	1	7	14	1.55	4	2	.10	.00	5.86	6.00	5851.34	2.34	.00	3.84	3775.06
	1	7	14	3.27	4	2	.10	.00	5.86	6.00	10430.10	2.42	.00	3.90	3189.63
	1	7	16	2.24	4	2	.10	.00	5.86	6.00	5653.43	2.59	.00	4.16	2523.85
	1	7	114	5.51	4	2	.10	.00	5.86	6.00	15035.29	2.46	.00	4.01	2728.73
6-Hour ESH	1	7	13	1.35	4	2	.10	.00	5.86	6.00	6388.43	2.31	.00	4.27	4732.17
	1	7	13	6.86	4	2	.10	.00	5.86	6.00	16490.80	2.61	.00	4.06	2403.91
	1	7	12	1.43	4	2	.10	.00	5.86	6.00	4862.54	2.46	.00	4.59	3400.37
	1	7	12	8.29	4	2	.10	.00	5.86	6.00	18461.29	2.76	.00	4.15	2226.94
	1	7	11	.63	4	2	.10	.00	5.86	6.00	2341.32	2.38	.00	4.16	3716.39
	1	7	111	8.92	4	2	.10	.00	5.86	6.00	18891.89	2.81	.00	4.15	2117.93
	1	7	17	.21	4	2	.10	.00	5.86	6.00	833.69	2.33	.00	3.85	3969.95
	1	7	117	9.13	4	2	.10	.00	5.86	6.00	19077.18	2.81	.00	4.15	2089.51
	1	7	-7	9.13	4	2	.10	.00	5.86	6.00	3179.49	4.33	1985.89	2.62	348.25
	1	8	15	1.72	4	2	.10	.00	13.42	6.00	18073.72	2.36	.00	11.21	10507.98
	1	8	14	1.55	4	2	.10	.00	13.42	6.00	17946.54	2.32	.00	11.05	11578.41
	1	8	14	3.27	4	2	.10	.00	13.42	6.00	31569.18	2.40	.00	11.14	9654.18
	1	8	16	2.24	4	2	.10	.00	13.42	6.00	16275.56	2.56	.00	11.49	7265.87
	1	8	114	5.51	4	2	.10	.00	13.42	6.00	45550.60	2.44	.00	11.28	8266.90
	1	8	13	1.35	4	2	.10	.00	13.42	6.00	17837.68	2.30	.00	11.64	13213.10
6-Hour FBH	1	8	13	6.86	4	2	.10	.00	13.42	6.00	48533.00	2.59	.00	11.35	7074.78
	1	8	12	1.43	4	2	.10	.00	13.42	6.00	13244.60	2.45	.00	12.02	9261.96
	1	8	12	8.29	4	2	.10	.00	13.42	6.00	53710.67	2.73	.00	11.47	6478.97
	1	8	11	.63	4	2	.10	.00	13.42	6.00	6710.26	2.36	.00	11.49	10651.20
	1	8	111	8.92	4	2	.10	.00	13.42	6.00	54805.68	2.79	.00	11.47	6144.13
	1	8	17	.21	4	2	.10	.00	13.42	6.00	2541.44	2.31	.00	11.07	12102.08

1	8	117	9.13	4	2	.10	.00	13.42	6.00	55309.65	2.78	.00	11.46	6058.01
1	8	-7	9.13	4	2	.10	.00	13.42	6.00	24317.58	3.36	1994.52	9.91	2663.48

Note!
The 6-Hour FBH
Controls MINIMUM
Top of Dam

SUMMARY TABLE 3

DISCHARGE,CFS

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
	PSH	2-year 24-hr	10-year 24-hr	100-year 24-hr	24-hr ESH	24-hr PMH	6-hr ESH	6-hr PMH		
XSEC/STRUC NO. -7 ALTERNATE 1	116.39	88.79	99.57	248.25	1922.17	10489.61	3179.49	24317.58	.00	.00
XSEC/STRUC NO. 11 ALTERNATE 1	208.18	91.25	351.05	763.21	342.12	924.61	2341.32	6710.26	.00	.00
XSEC/STRUC NO. 12 ALTERNATE 1	2850.53	728.75	3054.32	6780.47	4352.14	11642.72	18461.29	53710.67	.00	.00
XSEC/STRUC NO. 13 ALTERNATE 1	2404.90	576.25	2490.44	5666.46	3549.90	9618.57	16490.80	48533.00	.00	.00
XSEC/STRUC NO. 14 ALTERNATE 1	1170.54	298.87	1467.65	3427.72	1647.13	4663.95	10430.10	31569.18	.00	.00
XSEC/STRUC NO. 15 ALTERNATE 1	566.91	190.29	851.73	1945.26	887.66	2481.41	6049.65	18073.72	.00	.00
XSEC/STRUC NO. 16 ALTERNATE 1	799.15	247.58	971.82	2125.73	1183.81	3194.73	5653.43	16275.56	.00	.00
XSEC/STRUC NO. 17 ALTERNATE 1	68.64	22.85	107.47	248.35	106.32	302.31	833.69	2541.44	.00	.00
XSEC/STRUC NO.111 ALTERNATE 1	3042.56	762.95	3069.12	6800.91	4577.51	12483.96	18891.89	54805.68	.00	.00
XSEC/STRUC NO.114 ALTERNATE 1	1969.70	534.09	2266.45	5291.63	2829.24	7781.93	15035.29	45550.60	.00	.00
XSEC/STRUC NO.117 ALTERNATE 1	3117.78	771.69	3106.43	6886.95	4780.14	12766.72	19077.18	55309.65	.00	.00

ENDJOB CARD ENCOUNTERED. END OF JOB.

```
END OF  1 JOBS IN THIS RUN

@END
@END IGNORED - IN CONTROL MODE

@FIN
```

```
  RUNID: SCS04M   ACCT: 1604000101     PROJECT: SCS04

***** DISPLAYED LOG ENTRY SECTION *****
  08:23:14        SCS04M FIN

***** RESOURCE UTILIZATION SECTION *****
    RESOURCE                                                AVG
      TIME          CPU          IO          CCER         SIZE   QUALIFIER     FILENAME      PROGRAM     VERSION
  ------------ ------------ ------------ ------------ ----  ------------ ------------ ------------ ------------
  00:01:00.643 00:00:09.046 00:00:14.600 00:00:07.862  59K  SCS76        ABS          TR20         CONVEX
  00:00:00.617 00:00:00.000 00:00:00.351 00:00:05.510   3K  RESOURCES USED IN CONTROL MODE
  ============ ============ ============ ============ ====
  00:01:01.260 00:00:09.046 00:00:14.951 00:00:13.372  50K  SUMMARY

  IMAGES  READ:   134       PAGES:  71

  START:    08:22:55 DEC 22,1983    FIN:  08:23:14 DEC 22,1983

***** COST SECTION *****

  CHARGES BASED ON   BATCH  RUN  AT L PRIORITY
  RT  ($000.68/MIN)   :$000000.69
  CPU ($001.44/MIN)   :$000000.21
  IO  ($000.75/MIN)   :$000000.18
  CCER($001.44/MIN)   :$000000.32
                       ----------

  ESTIMATED TOTAL COST:$000001.40
                       ==========
```