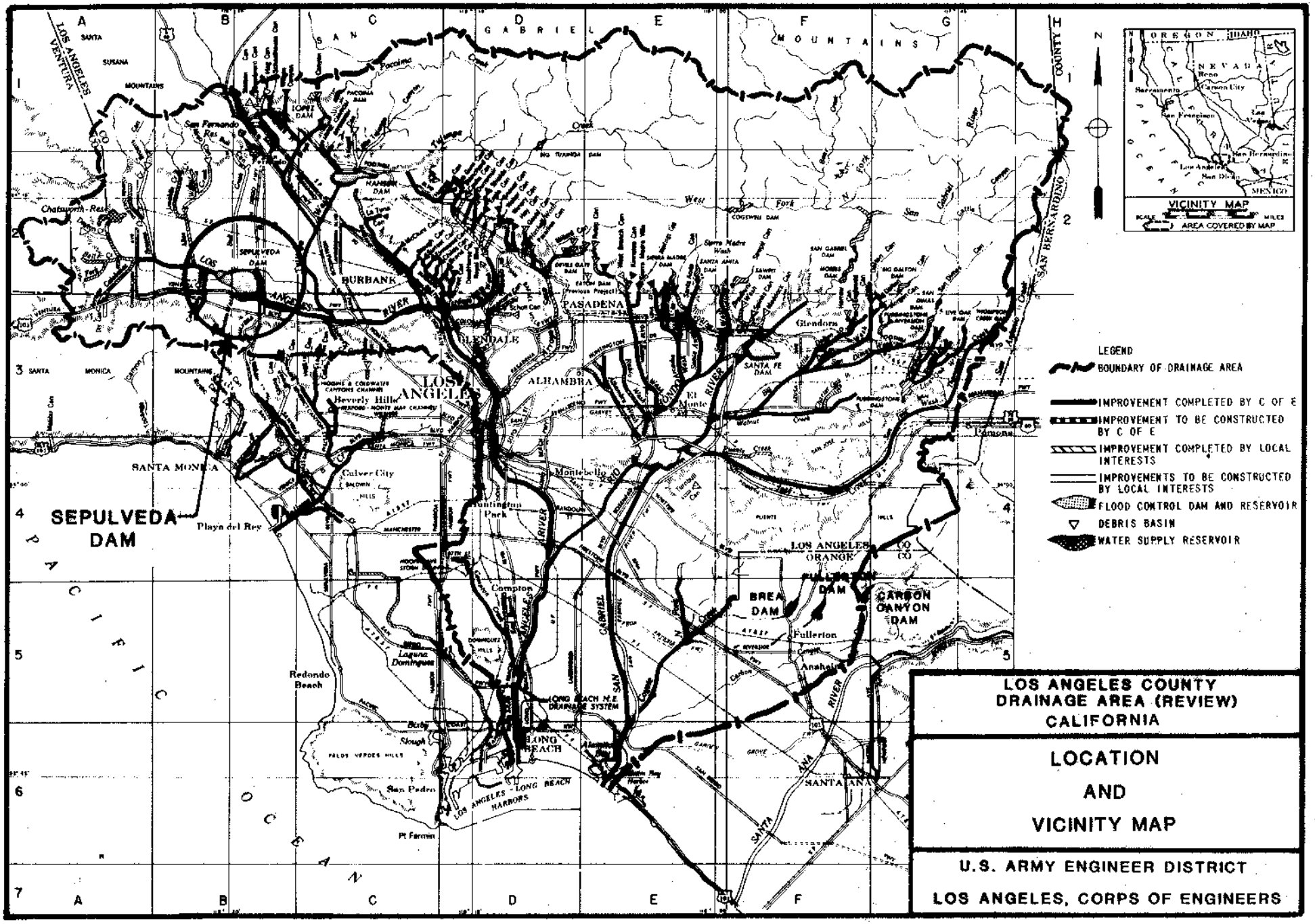
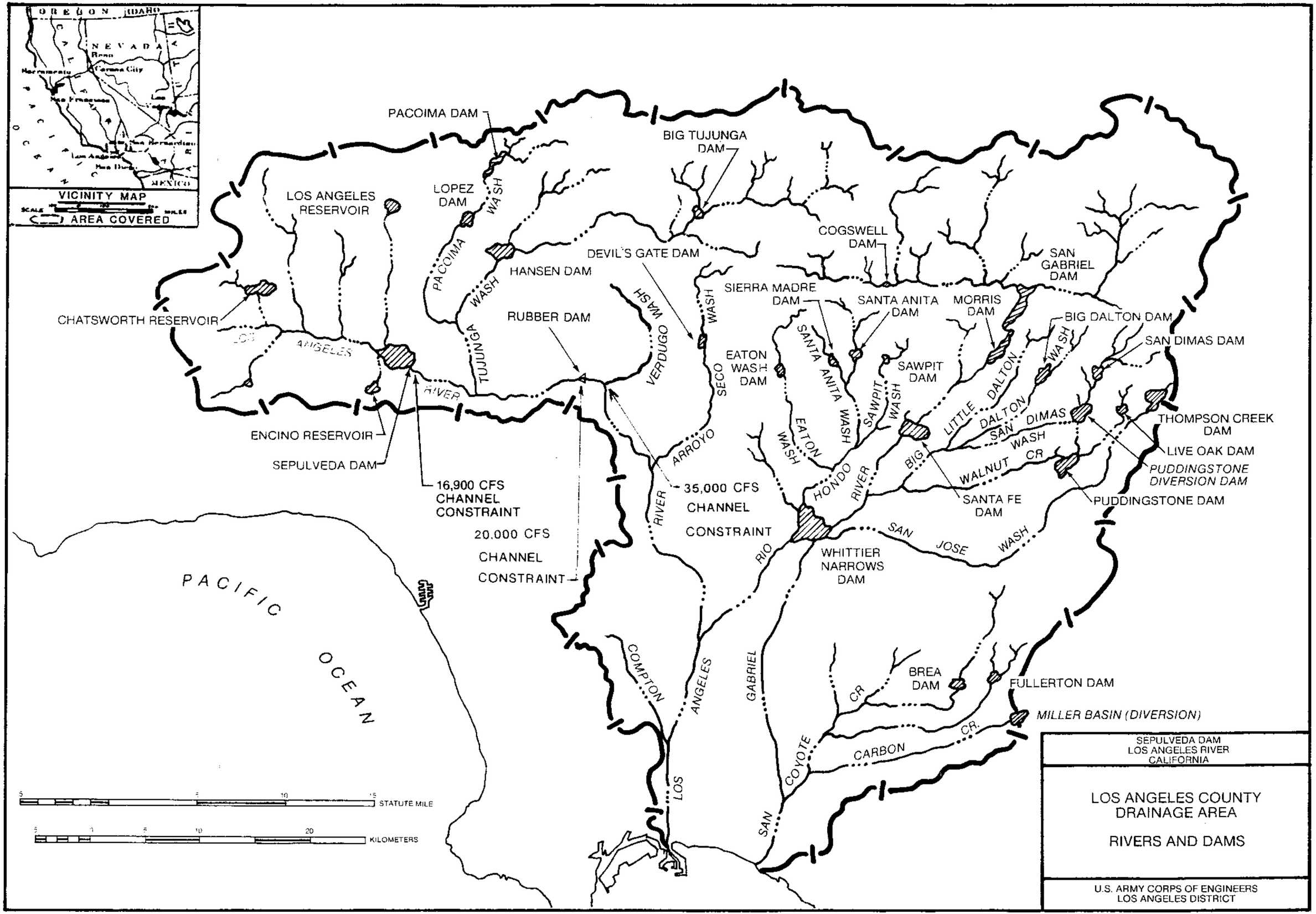
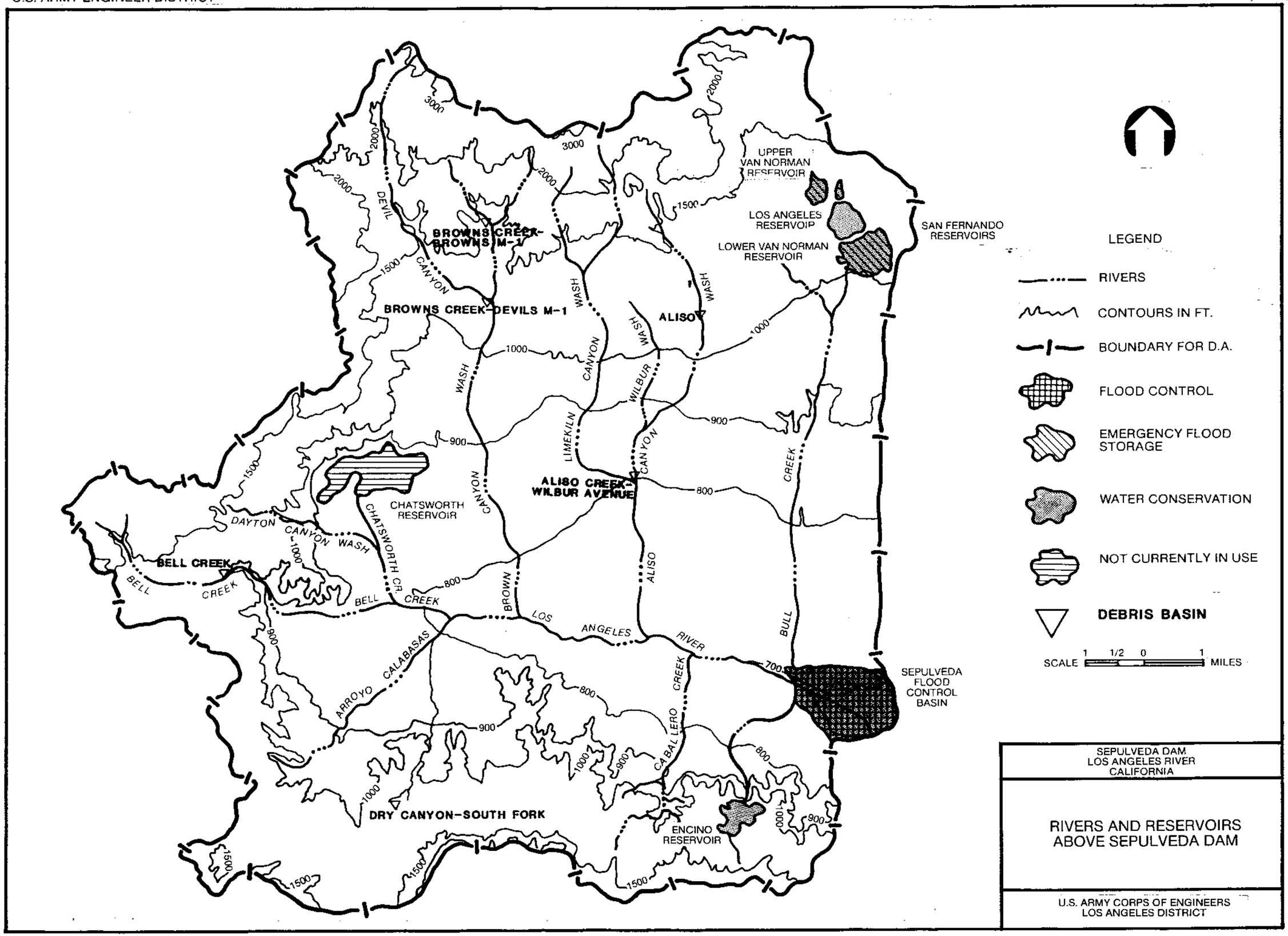

LOS ANGELES COUNTY
DRAINAGE AREA (REVIEW)
CALIFORNIA
LOCATION
AND
VICINITY MAP
U.S. ARMY ENGINEER DISTRICT
LOS ANGELES, CORPS OF ENGINEERS
LEGEND
BOUNDARY OF DRAINAGE AREA
IMPROVEMENT COMPLETED BY C OF E
IMPROVEMENT TO BE CONSTRUCTED BY C OF E
IMPROVEMENT COMPLETED BY LOCAL INTERESTS
IMPROVEMENTS TO BE CONSTRUCTED BY LOCAL INTERESTS
FLOOD CONTROL DAM AND RESERVOIR
DEBRIS BASIN
WATER SUPPLY RESERVOIR
VICINITY MAP
AREA COVERED BY MAP
SEPULVEDA DAM
BREA DAM
FULLERTON DAM
CARBON CANYON DAM
LOS ANGELES
BURBANK
PASADENA
GLENDALE
ALHAMBRA
SANTA MONICA
Playa del Rey
Culver City
Beverly Hills
Montebello
Huntington Park
Compton
Redondo Beach
LONG BEACH
San Pedro
Pt Fermin
Fullerton
Anaheim
SANTA ANA
Glendora
Pomona
SAN GABRIEL MOUNTAINS
SANTA SUSANA MOUNTAINS
SANTA MONICA MOUNTAINS
PACIFIC OCEAN
LOS ANGELES - LONG BEACH HARBORS
LONG BEACH N.E. DRAINAGE SYSTEM
SAN BERNARDINO COUNTY
LOS ANGELES CO
ORANGE CO
VENTURA CO

PLATE 2-01

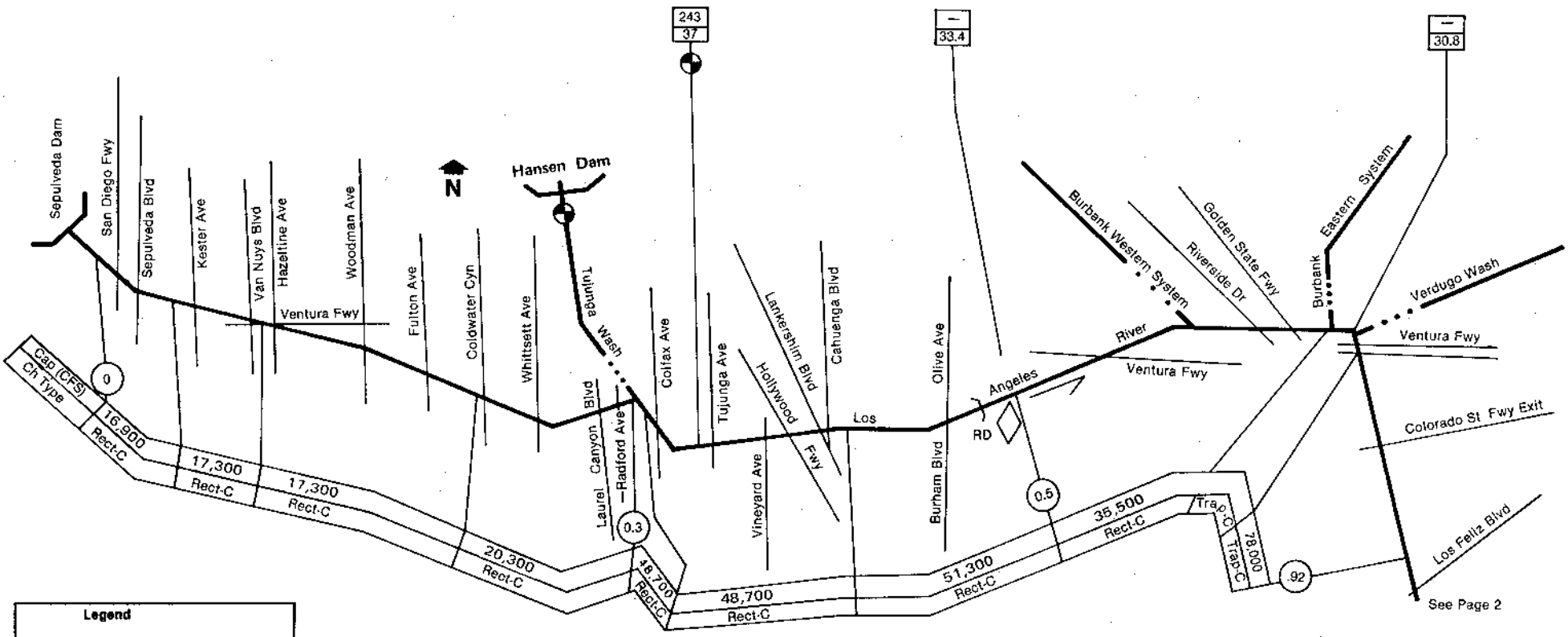

OREGON
IDAHO
NEVADA
MEXICO
VICINITY MAP
AREA COVERED
PACOIMA DAM
BIG TUJUNGA DAM
LOS ANGELES RESERVOIR
LOPEZ DAM
PACOIMA WASH
HANSEN DAM
DEVIL'S GATE DAM
COGSWELL DAM
SAN GABRIEL DAM
CHATSWORTH RESERVOIR
RUBBER DAM
VERDUGO WASH
SIERRA MADRE DAM
SANTA ANITA DAM
MORRIS DAM
BIG DALTON DAM
SAN DIMAS DAM
LOS ANGELES RIVER
TUJUNGA WASH
SECO WASH
EATON WASH DAM
SANTA ANITA WASH
SAWPIT DAM
SAWPIT WASH
LITTLE DALTON WASH
DALTON WASH
SAN DIMAS WASH
THOMPSON CREEK DAM
LIVE OAK DAM
PUDDINGSTONE DIVERSION DAM
PUDDINGSTONE DAM
ENCINO RESERVOIR
SEPULVEDA DAM
16,900 CFS CHANNEL CONSTRAINT
20,000 CFS CHANNEL CONSTRAINT
35,000 CFS CHANNEL CONSTRAINT
ARROYO SECO
EATON WASH
HONDO RIVER
BIG WALNUT CR
SANTA FE DAM
WHITTIER NARROWS DAM
SAN JOSE WASH
RIO HONDO
PACIFIC OCEAN
COMPTON CR
LOS ANGELES RIVER
SAN GABRIEL RIVER
BREA DAM
FULLERTON DAM
MILLER BASIN (DIVERSION)
COYOTE CR
CARBON CR.
STATUTE MILE
KILOMETERS
SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA
LOS ANGELES COUNTY
DRAINAGE AREA
RIVERS AND DAMS
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

RIVERS AND RESERVOIRS ABOVE SEPULVEDA DAM

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




**Legend**

- Dam
- Recharge Basin
- RD Rubber Dam
- Drop Structure
- Stream Gage
- Drainage Area
- Miles From Stream Mouth
- Travel Time (Hours)
- Foot Bridge
- U Channel Unlined
- R Rip Rap Side Slopes
- S Soft Bottom
- C Concrete
- G Grouted Stone
- G/C Side Slope / Bottom
- L Levee

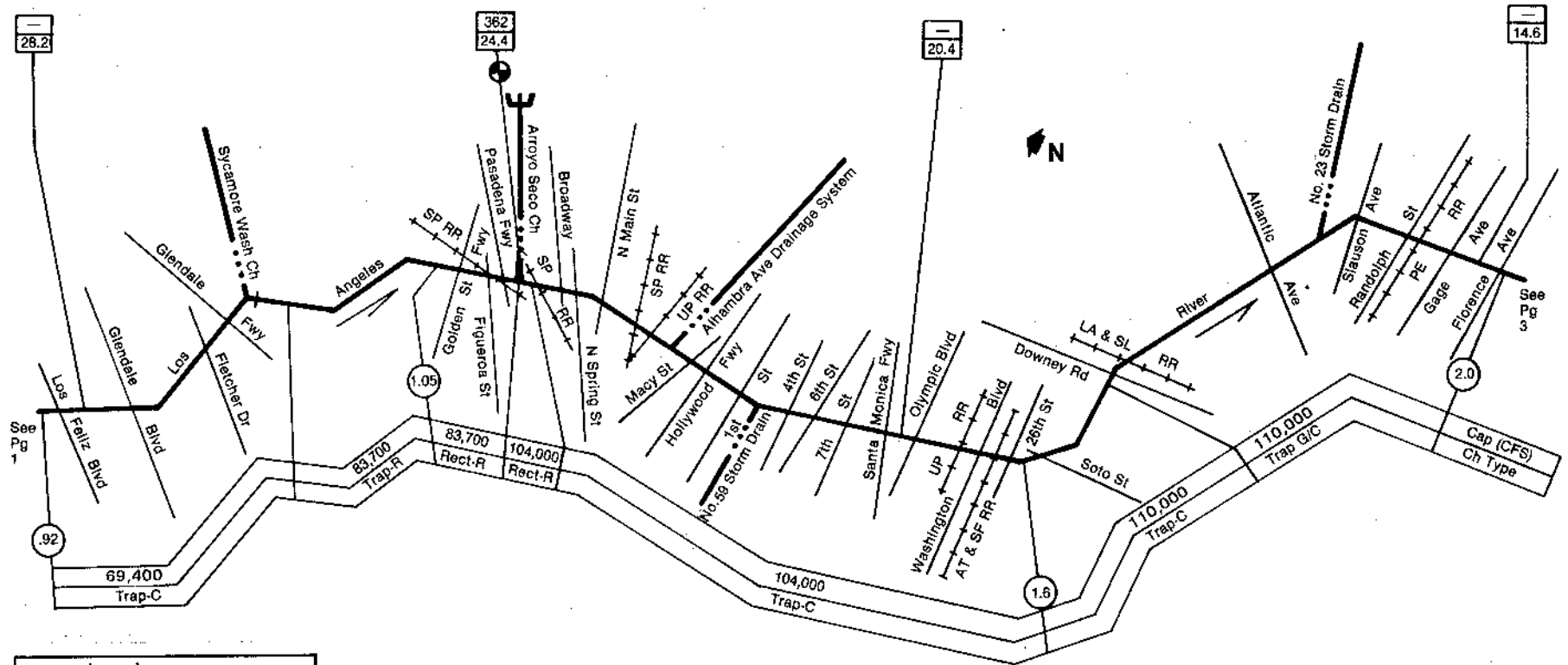
| | Significant Features | Miles | Remarks |
|---|---|---|---|
| RD | Headworks Spreading Grounds | 33.4 | Intake Capacity 40 CFS at Rubber Dam |
| | Los Angeles River at Tujunga (LACFCD) | 37 | Telemetry LART |
| | Tujunga Wash | 37.8 | Flows Regulated by Hansen, Big Tujunga, Pacoima and Lopez Dams |

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

# CHANNEL CAPACITIES & CONFIGURATIONS LOS ANGELES RIVER

## SEPULVEDA DAM TO LOS FELIZ BLVD

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




**Legend**

- Dam
- Recharge Basin
- RD Rubber Dam
- Drop Structure
- Stream Gage
- Drainage Area
- Miles From Stream Mouth
- Travel Time (Hours)
- Foot Bridge
- U Channel Unlined
- R Rip Rap Side Slopes
- S Soft Bottom
- C Concrete
- G Grouted Stone
- G/ Side Slope
- /C Bottom
- L Levee

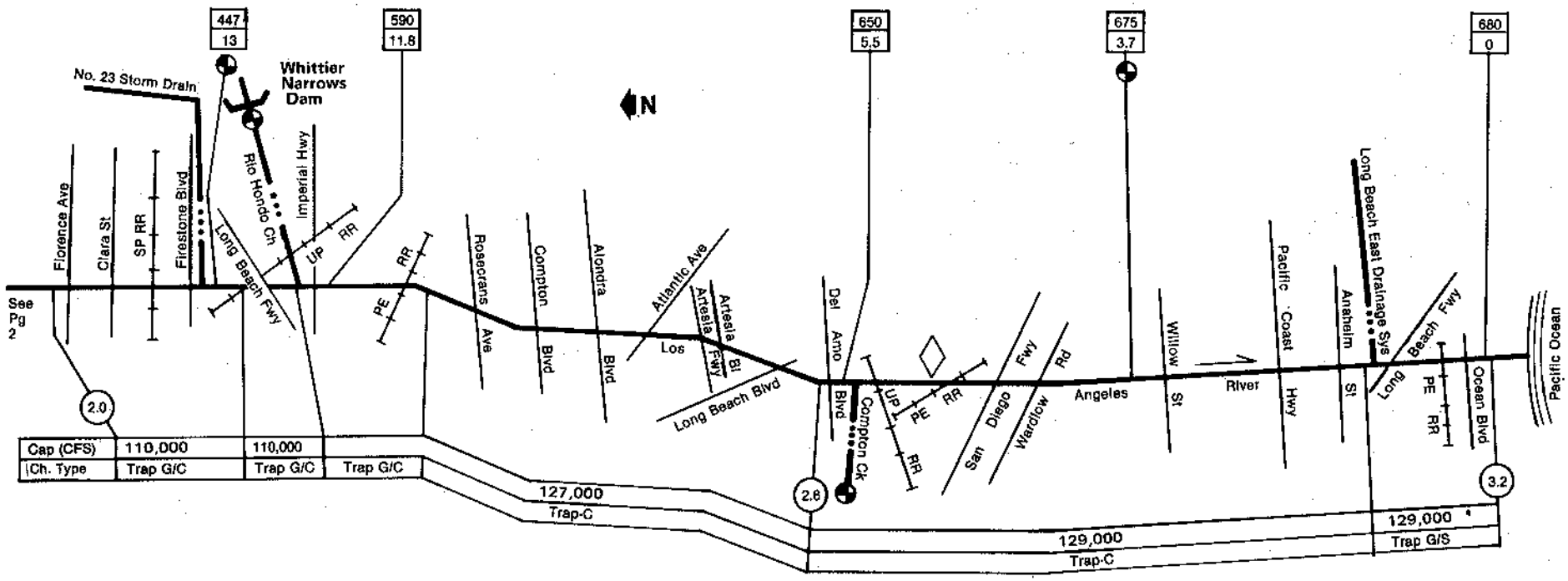
| | Significant Features | Miles | Remarks |
|---|---|---|---|
| ⊕ | Los Angeles River Above Arroyo Seco | 24.4 | Telemetry 002 LARA |
| | Arroyo Seco Channel | 24.3 | Flow Regulated by Devils Gate Dam (Max Q = 43,000 CFS) |

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

# CHANNEL CAPACITIES & CONFIGURATIONS LOS ANGELES RIVER

## LOS FELIZ BLVD TO FLORENCE AVE

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




**Legend**

- Dam
- Recharge Basin
- RD Rubber Dam
- Drop Structure
- Stream Gage
- Drainage Area
- Miles From Stream Mouth
- Travel Time (Hours)
- Foot Bridge
- U Channel Unlined
- R Rip Rap Side Slopes
- S Soft Bottom
- C Concrete
- G Grouted Stone
- G/C Side Slope / Bottom
- L Levee

| | Significant Features | Miles | Remarks |
|---|---|---|---|
| | Los Angeles River Near Firestone | 13 | Telemetry LARF |
| | Rio Hondo Channel near Downey | 12.1 | Flows Regulated by Whittier Narrows Flood Control Reservoir |
| | Dominguez Gap Spreading Grounds | 4.7-5.1 | Intake Capacities 3-20 CFS |
| | Los Angeles River Near Wardlow | 3.7 | Telemetry LARW |
| | Compton Creek Near Greenleaf | | (LACFCD) |

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

# CHANNEL CAPACITIES & CONFIGURATIONS LOS ANGELES RIVER

## FLORENCE AVE TO PACIFIC OCEAN

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

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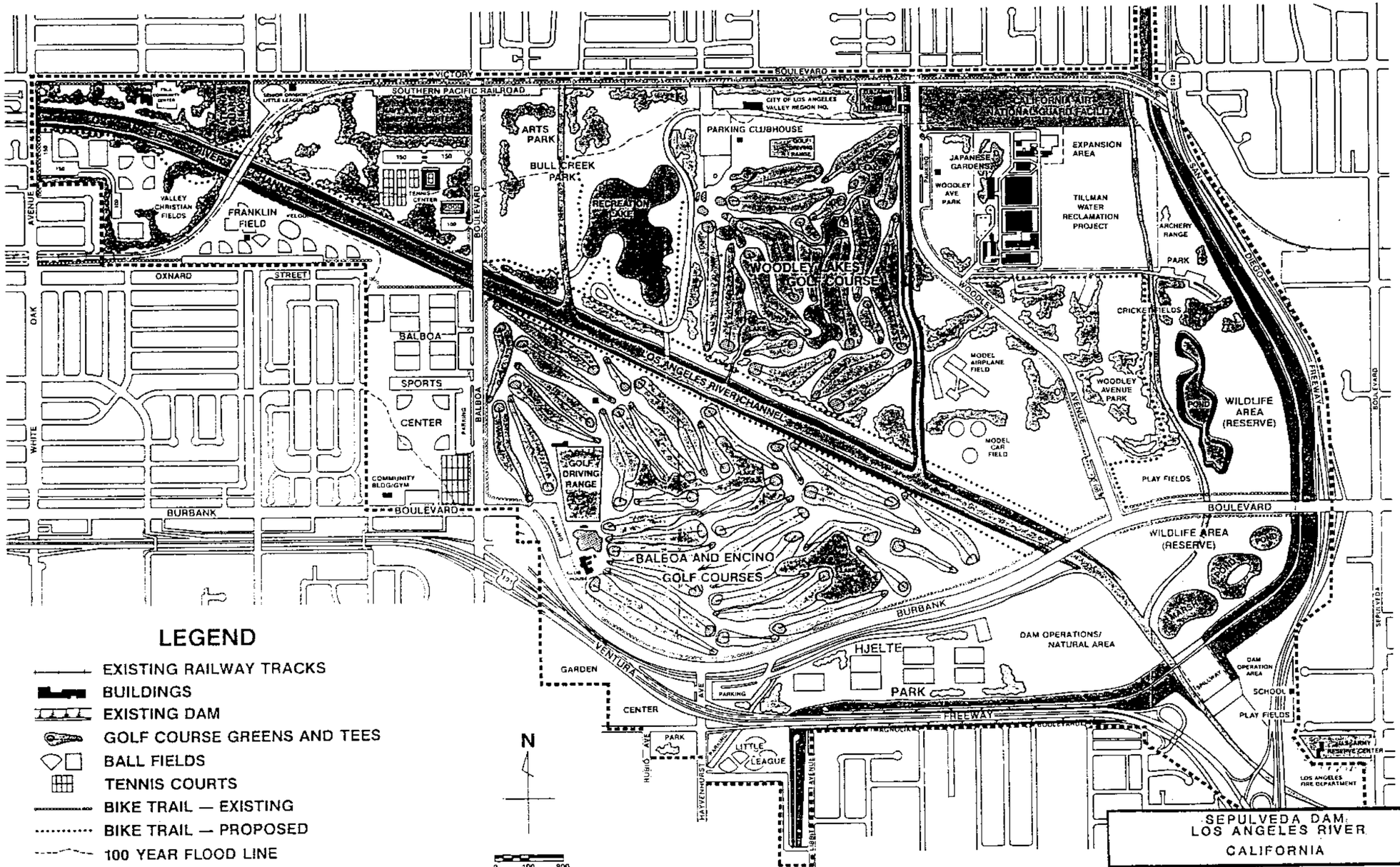


## LEGEND

- EXISTING RAILWAY TRACKS
- BUILDINGS
- EXISTING DAM
- GOLF COURSE GREENS AND TEES
- BALL FIELDS
- TENNIS COURTS
- BIKE TRAIL — EXISTING
- BIKE TRAIL — PROPOSED
- 100 YEAR FLOOD LINE
- BASIN BOUNDARY
- MILITARY FACILITIES

# SEPULVEDA BASIN MASTER PLAN

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

SEPULVEDA BASIN
WILDLIFE AND RECREATION
MASTER PLAN

U.S. CORPS OF ENGINEERS
LOS ANGELES DISTRICT

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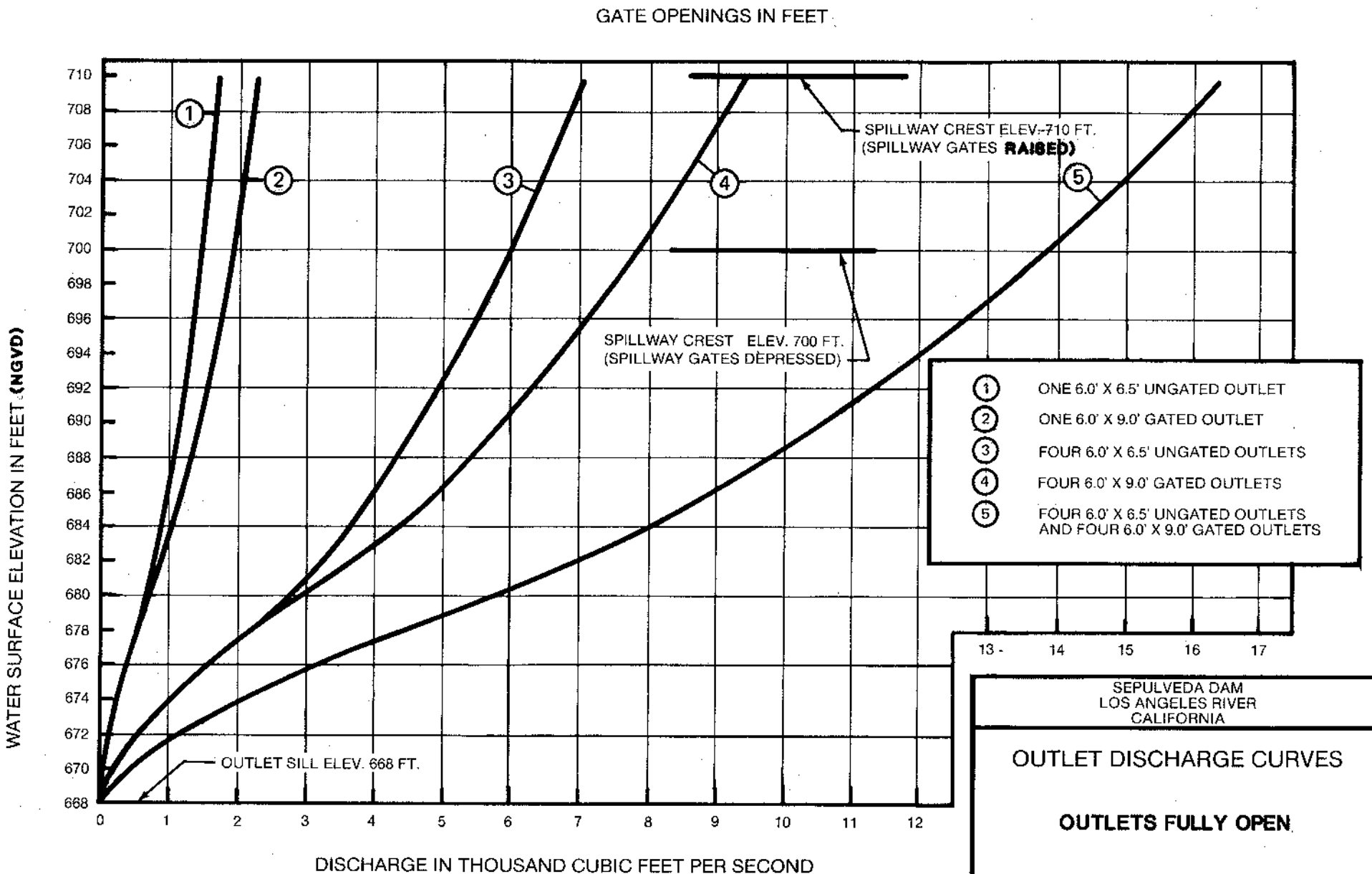
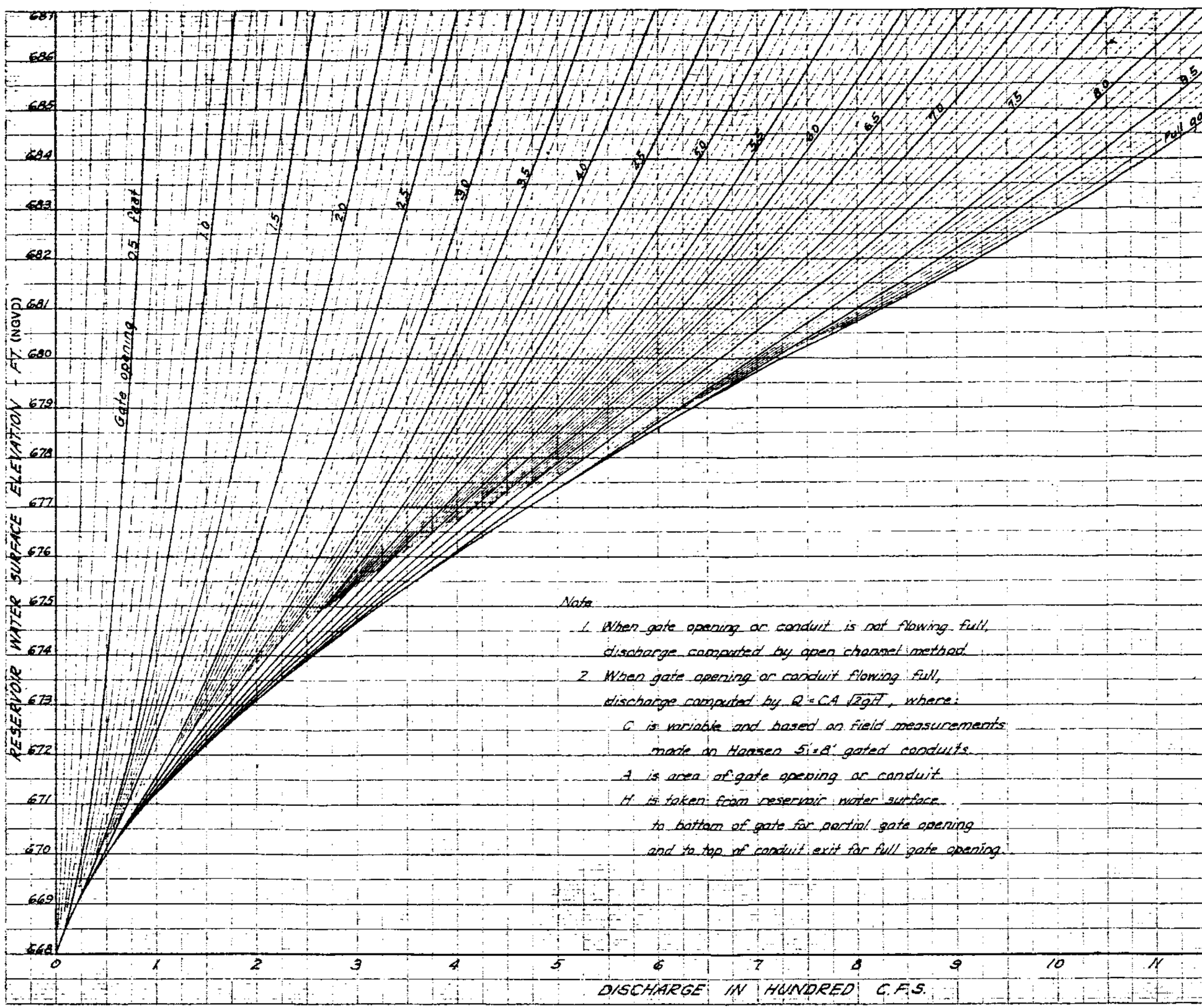



SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

OUTLET DISCHARGE CURVES

**OUTLETS FULLY OPEN**

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



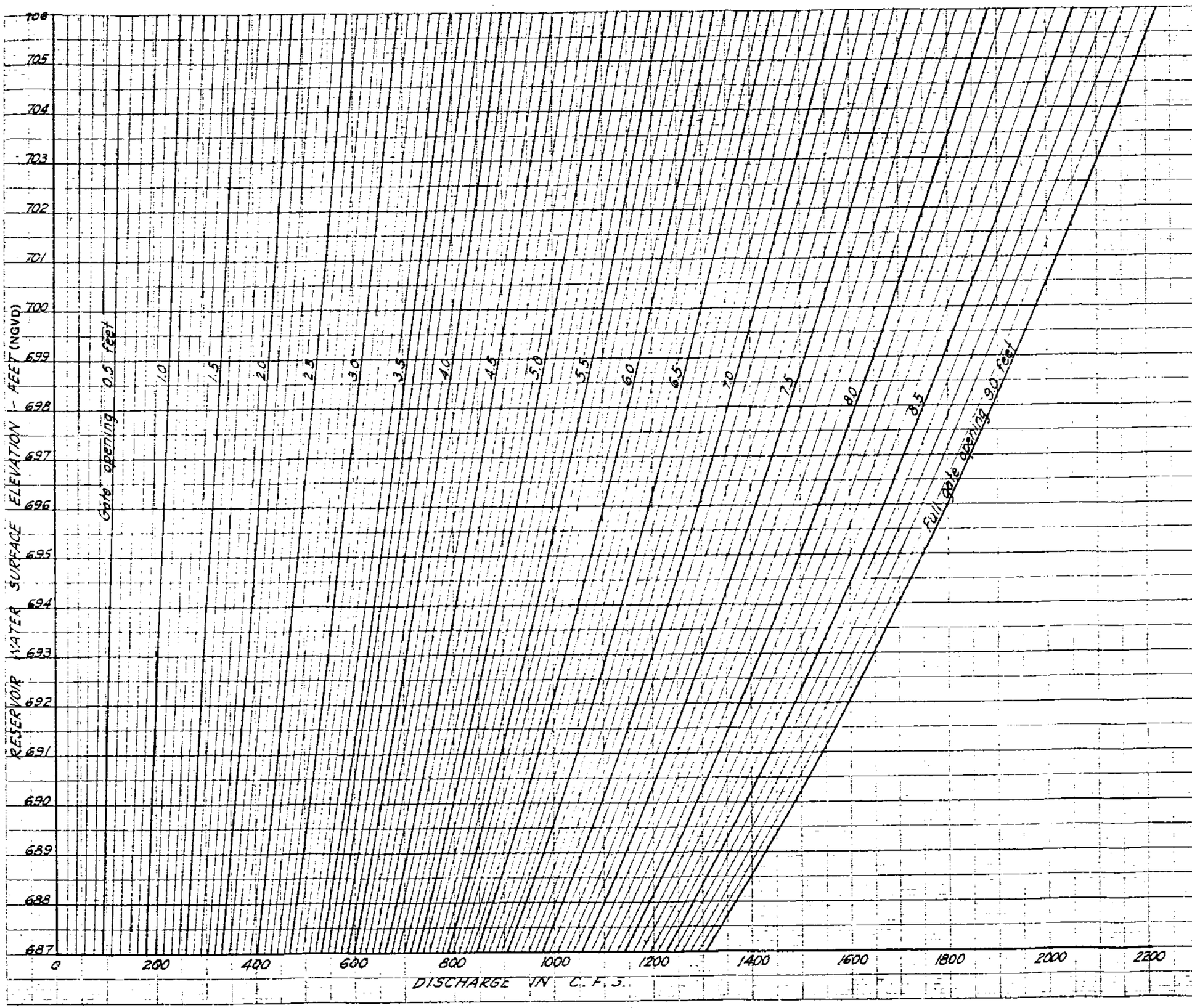

Note

1. When gate opening or conduit is not flowing full, discharge computed by open channel method.
2. When gate opening or conduit flowing full, discharge computed by $Q = CA\sqrt{2gH}$, where:
   - C is variable and based on field measurements made on Hansen 5'x8' gated conduits.
   - A is area of gate opening or conduit.
   - H is taken from reservoir water surface to bottom of gate for partial gate opening and to top of conduit exit for full gate opening.

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

OUTLET DISCHARGE CURVES
FOR PARTIAL GATE OPENINGS

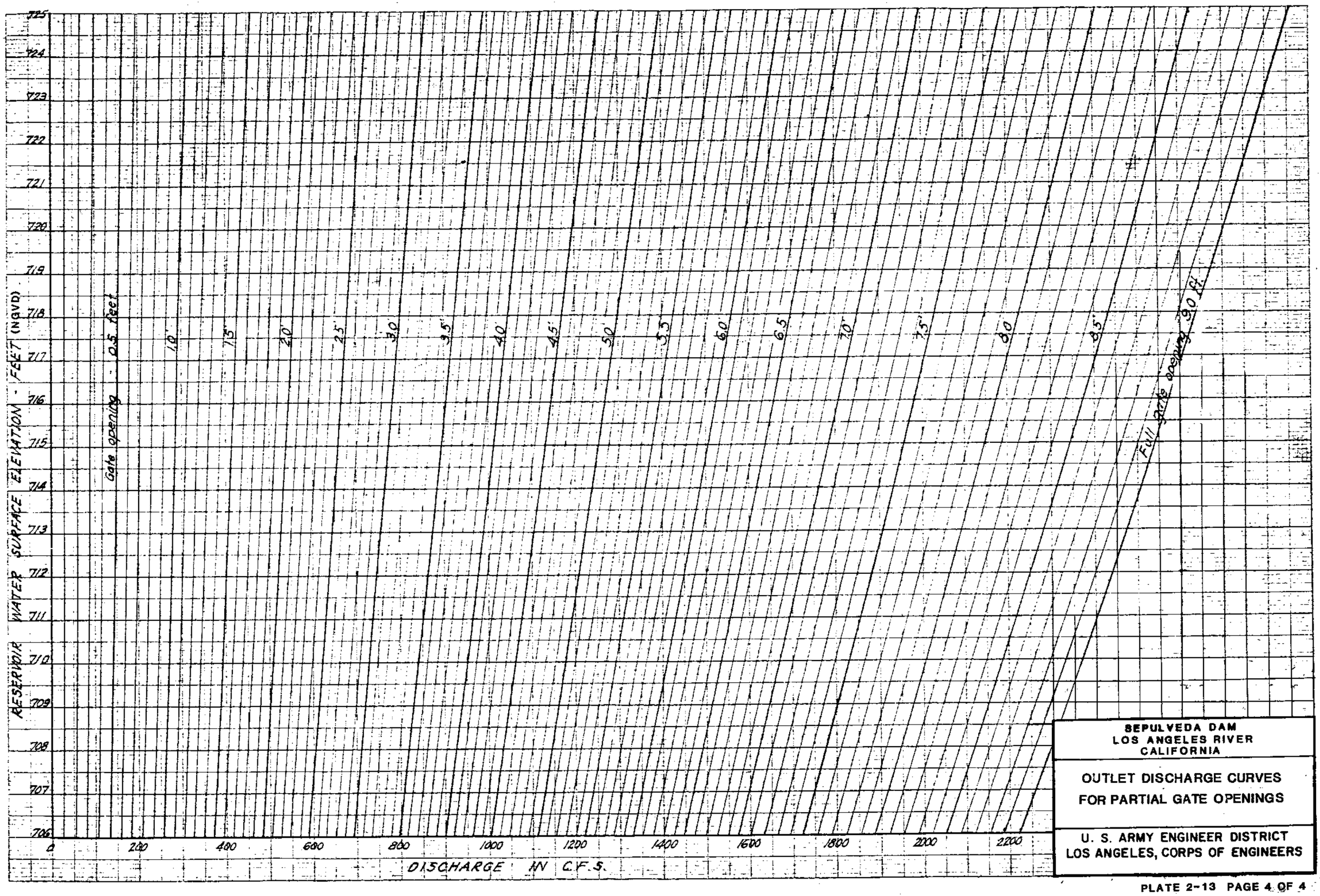
U. S. ARMY ENGINEER DISTRICT
LOS ANGELES, CORPS OF ENGINEERS




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

OUTLET DISCHARGE CURVES
FOR PARTIAL GATE OPENINGS

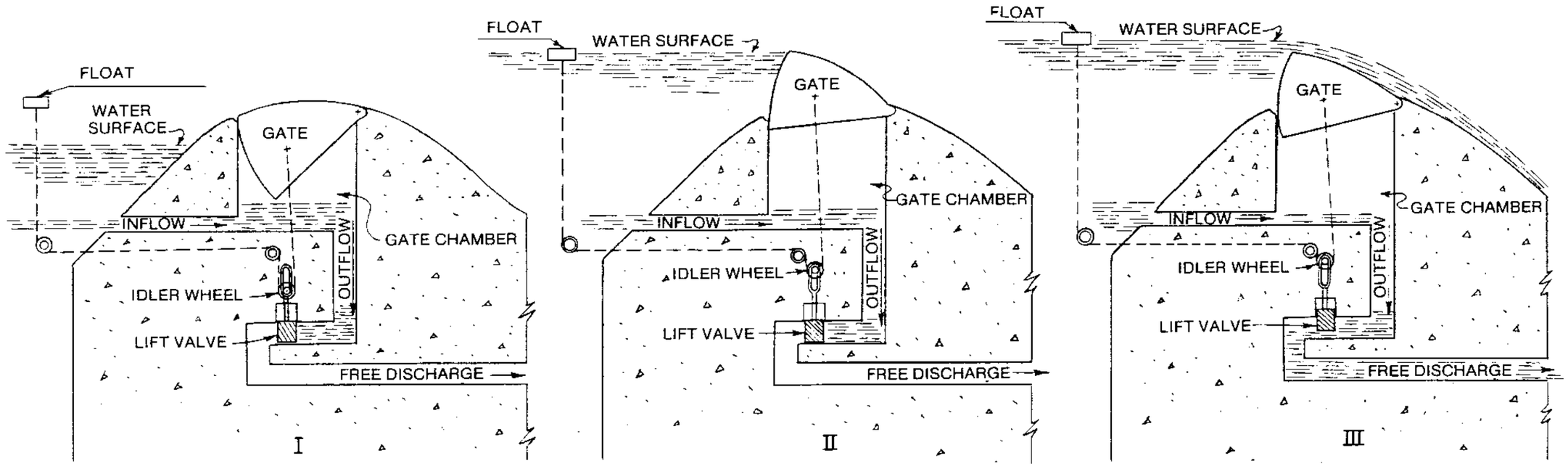
U. S. ARMY ENGINEER DISTRICT
LOS ANGELES, CORPS OF ENGINEERS




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

OUTLET DISCHARGE CURVES
FOR PARTIAL GATE OPENINGS

U. S. ARMY ENGINEER DISTRICT
LOS ANGELES, CORPS OF ENGINEERS




WATER IS RISING, GATE IS CLOSED, AND FLOAT IS AT LOWEST POSITION. IDLER WHEEL IS AT BOTTOM OF SLOT TO TAKE UP SLACK IN CABLE. LIFT VALVE IS CLOSED BY ITS OWN WEIGHT.

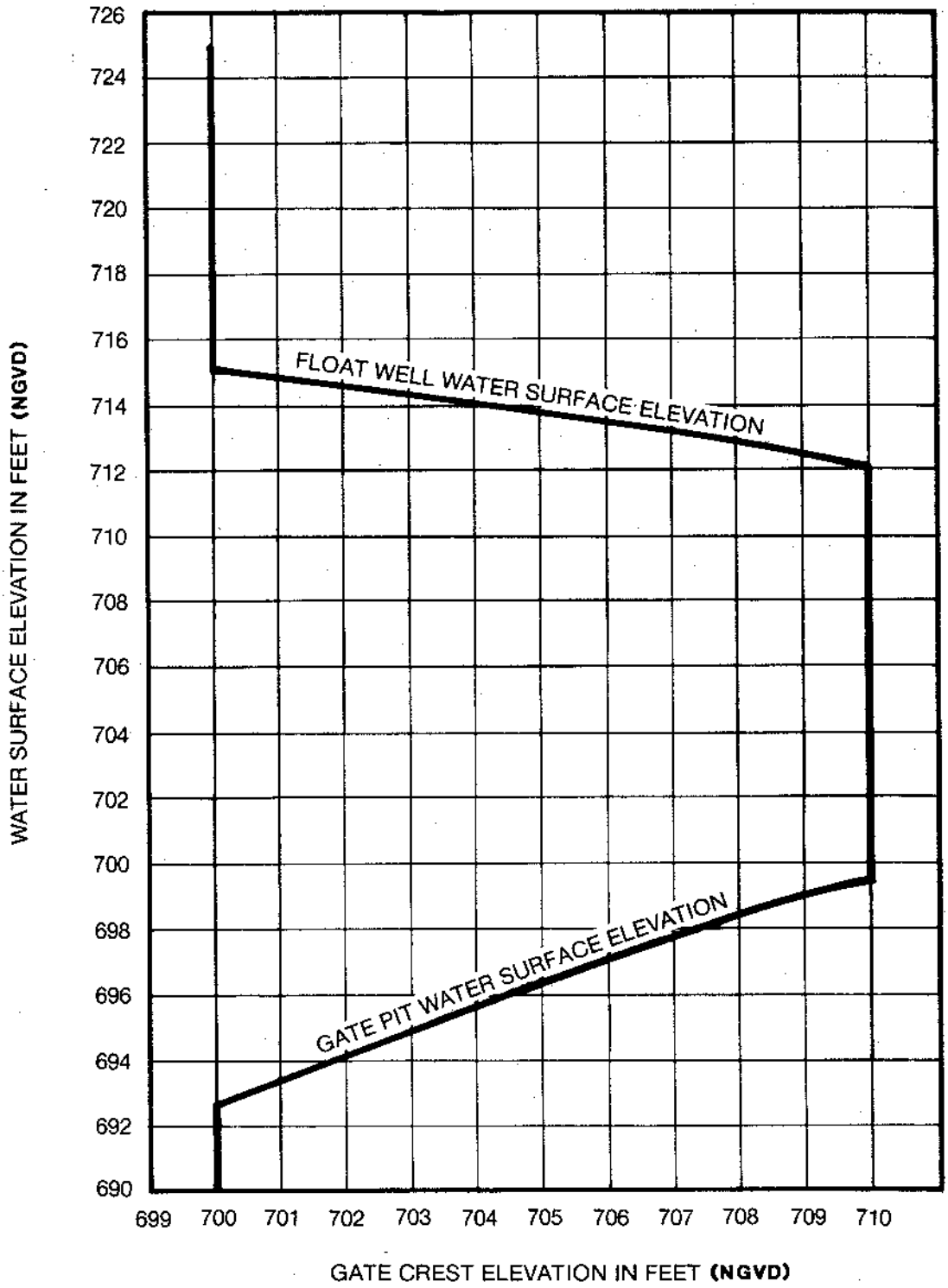
WATER IS AT MAXIMUM ELEVATION WITHOUT SPILLING. GATE HAS FLOATED TO TOP POSITION BY WATER IN GATE CHAMBER. IDLER WHEEL IS RAISED TO NEAR TOP OF SLOT, BUT LIFT VALVE IS STILL CLOSED. A FURTHER RISE OF THE FLOAT BY MORE THAN 1 FOOT WILL OPEN THE LIFT VALVE.

WATER IS PASSING OVER GATE. A FLOAT ELEVATION OF MORE THAN 1 FOOT ABOVE POSITION II (THE THRESHOLD OF SPILLING) OPENS THE LIFT VALVE. WHEN OUTFLOW EXCEEDS INFLOW TO THE GATE CHAMBER, THE GATE IS LOWERED. THE LOWERING OF THE GATE ALLOWS THE LIFT VALVE TO CLOSE UNDER ITS OWN WEIGHT UNTIL THE OUTFLOW AND INFLOW BALANCE, AND THE GATE REMAINS STATIONARY.

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

SCHEMATIC DIAGRAM
OF
CREST GATE OPERATION

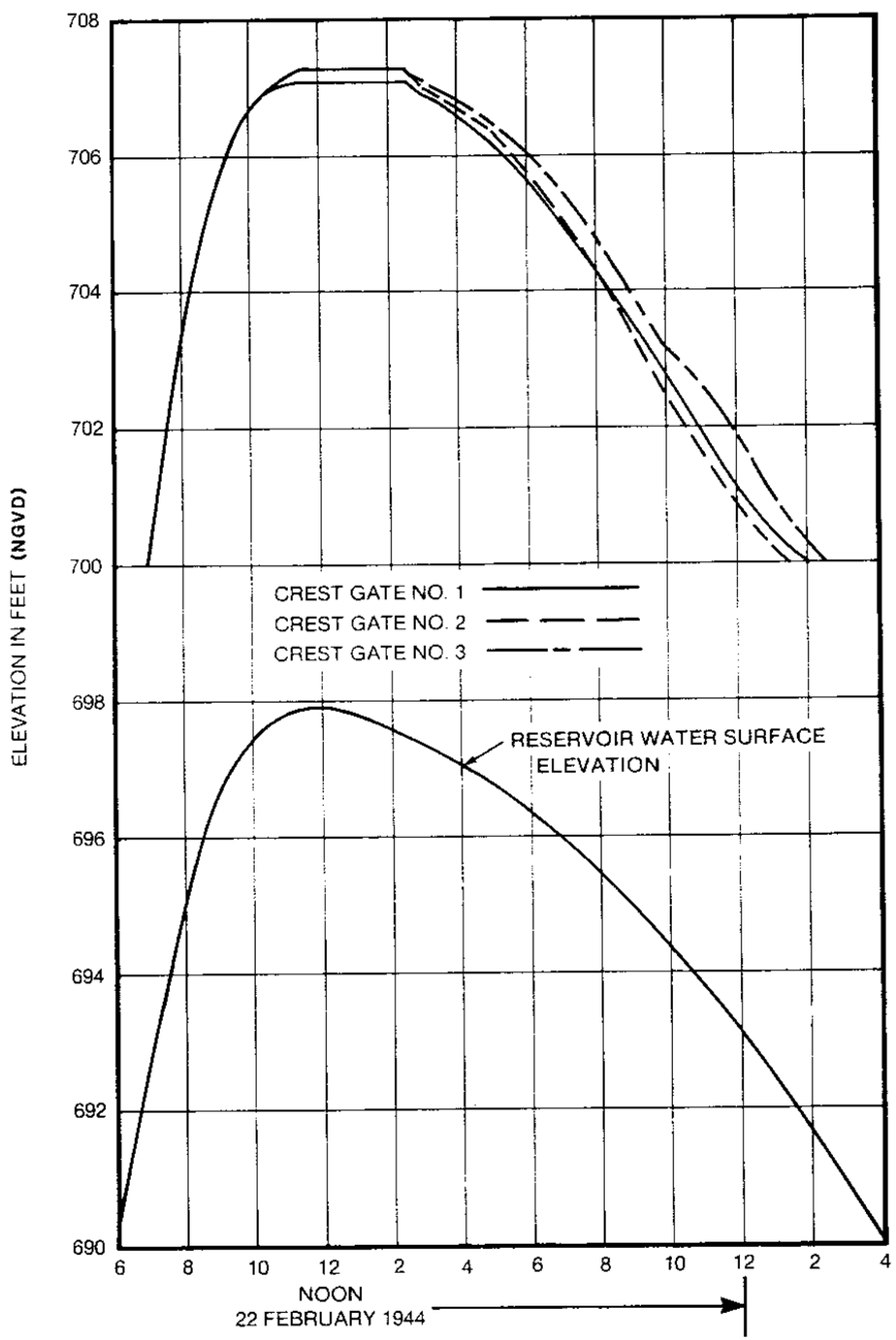
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

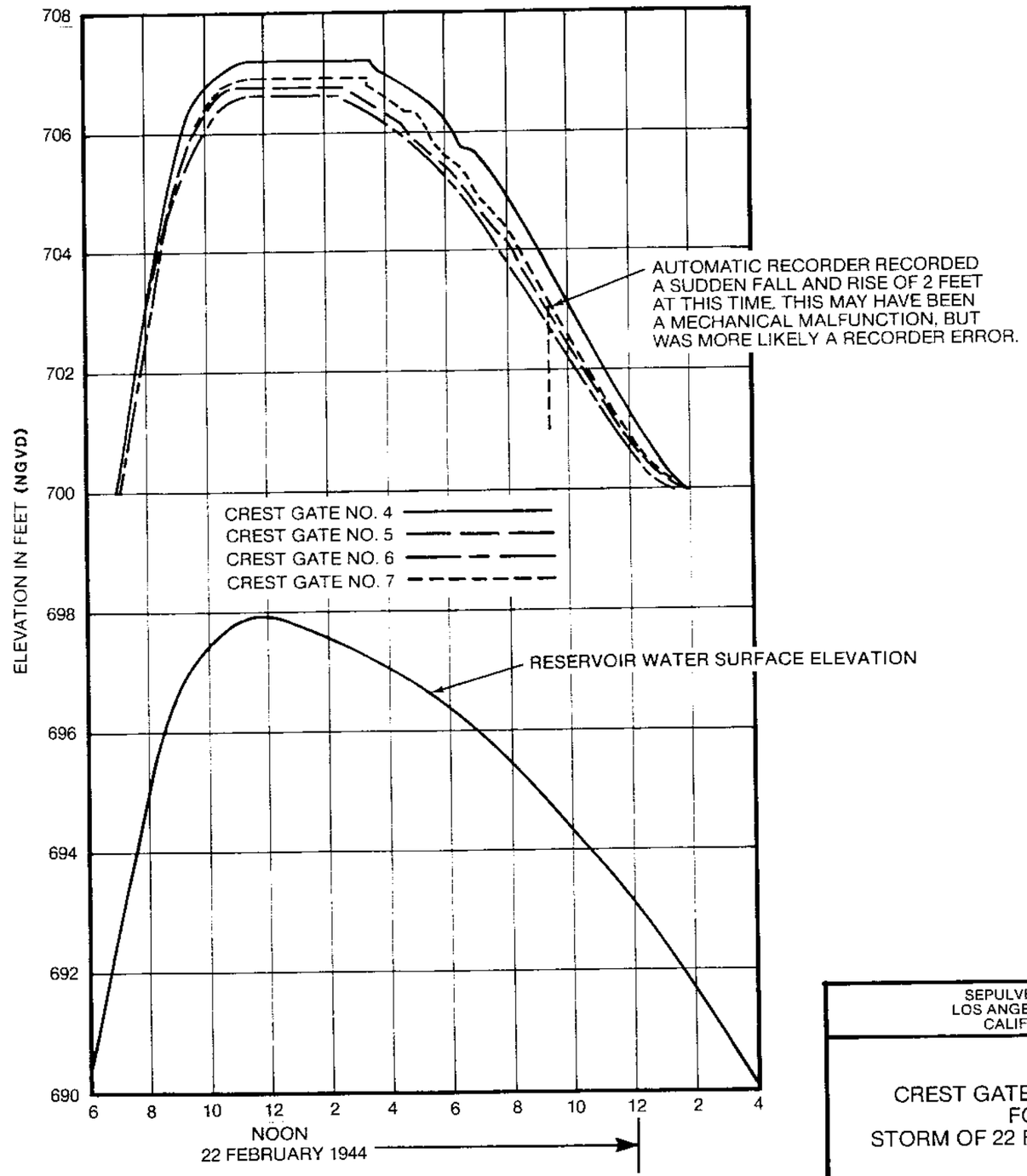



SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

ELEVATION OF CREST GATES
VS
WATER SURFACE ELEVATION
IN
GATE PIT AND FLOAT WELL

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

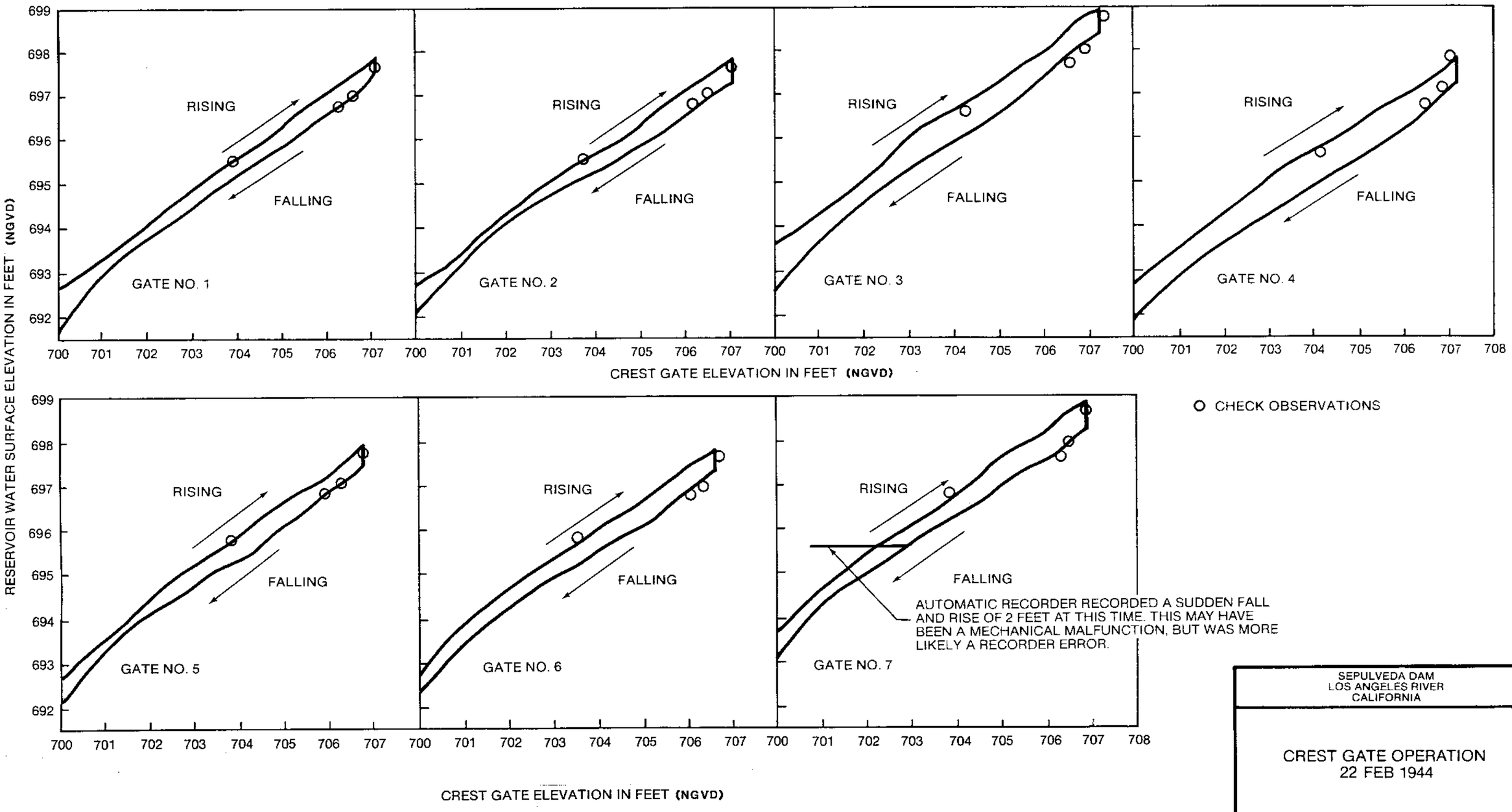



SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

CREST GATE OPERATION
FOR
STORM OF 22 FEBRUARY 1944

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

CREST GATE OPERATION
22 FEB 1944

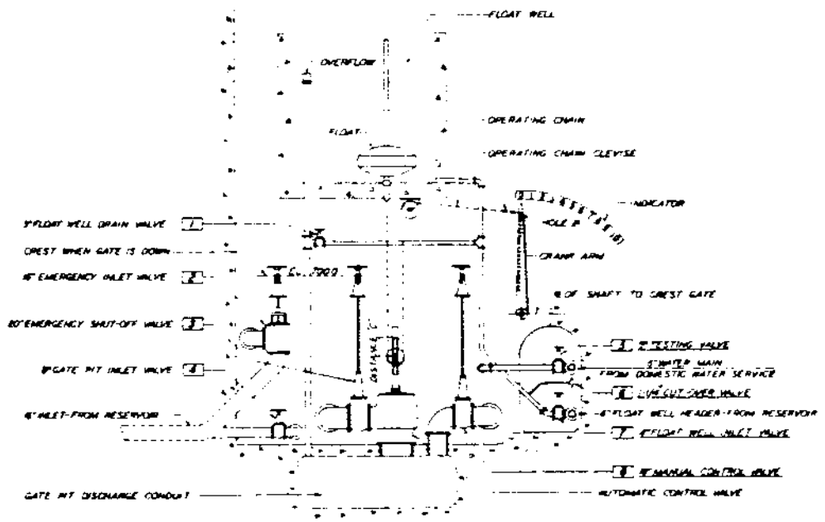
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

## GENERAL

THE CREST GATES ARE DESIGNED TO PERMIT STORAGE OF FLOOD WATERS TO ELEV 710.0 WHEN THE GATES ARE FULLY RAISED, OR TO PERMIT DISCHARGE OF FLOOD WATERS DOWN TO ELEV 700.0 WHEN THE GATES ARE LOWERED. THE FLOATS WHICH NORMALLY CONTROL THE ELEVATION OF THE CREST GATES, HAVE A WORKING RANGE BETWEEN RESERVOIR WATER SURFACE ELEVATION OF 709.6 AND RESERVOIR WATER SURFACE ELEVATION OF 716.0

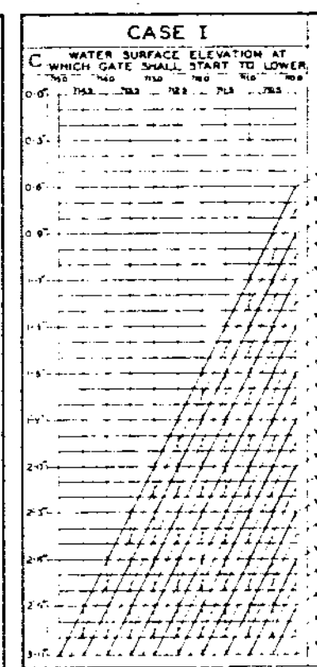
WITHIN THE LIMITS SET FORTH ABOVE, AN INFINITELY LARGE NUMBER OF OPERATING CHARACTERISTICS ARE AVAILABLE.

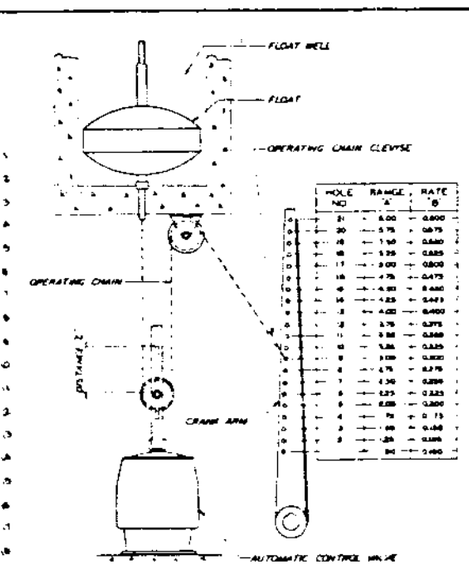
THE INSTRUCTIONS ON THIS SHEET ARE INTENDED TO FACILITATE THE ADJUSTMENT OF THE MECHANISM TO MEET ANY OPERATING CHARACTERISTIC WITHIN THE LIMITS SET FORTH ABOVE.




SCHEMATIC SKETCH
NOT TO SCALE

## CASE I

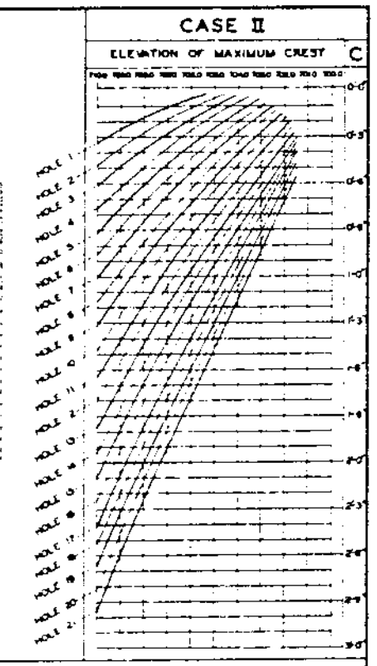



| HOLE NO | RANGE A | RATE B |
|---|---|---|
| 21 | 6.00 | 0.600 |
| 20 | 5.75 | 0.575 |
| 19 | 5.50 | 0.550 |
| 18 | 5.25 | 0.525 |
| 17 | 5.00 | 0.500 |
| 16 | 4.75 | 0.475 |
| 15 | 4.50 | 0.450 |
| 14 | 4.25 | 0.425 |
| 13 | 4.00 | 0.400 |
| 12 | 3.75 | 0.375 |
| 11 | 3.50 | 0.350 |
| 10 | 3.25 | 0.325 |
| 9 | 3.00 | 0.300 |
| 8 | 2.75 | 0.275 |
| 7 | 2.50 | 0.250 |
| 6 | 2.25 | 0.225 |
| 5 | 2.00 | 0.200 |
| 4 | .75 | 0.175 |
| 3 | .50 | 0.150 |
| 2 | .25 | 0.125 |
| 1 | .00 | 0.100 |

SCHEMATIC SKETCH
NOT TO SCALE

## CASE II




### THE ABOVE SCHEMATIC SKETCH SHOWS THE VALVES BY WHICH THE CREST GATES ARE CONTROLLED

**TESTING WITH CITY WATER.** TO TEST THE GATE DURING THE DRY SEASON CLOSE VALVES NUMBERED 1 2 3 4 5 6 7 8 THEN

- TO RAISE GATE OPEN VALVE ..... 5
- TO RAISE FLOAT OPEN VALVE ..... 6
- TO DRAIN GATE PIT OPEN VALVE ..... 4
- TO DRAIN FLOAT CHAMBER OPEN VALVE ..... 7

**FULL AUTOMATIC CONTROL.** THIS IS THE NORMAL OPERATING CONDITION FOR WHICH THE CREST GATES ARE DESIGNED. TO PERMIT THE FULL AUTOMATIC MECHANISM TO FUNCTION, VALVES 5 4 7 SHALL BE OPEN AND VALVES 1 2 3 6 & 8 SHALL BE CLOSED. DETAILED INSTRUCTIONS ARE GIVEN ELSEWHERE ON THIS SHEET EXPLAINING THE METHOD OF ADJUSTING THE CONTROL MECHANISM TO PRODUCE THE DESIRED OPERATING CHARACTERISTIC.

**SEMI-AUTOMATIC CONTROL.** TO ADJUST THE CONTROL MECHANISM TO MAINTAIN THE GATE CREST AT ANY CHOSEN ELEVATION REGARDLESS OF THE FLOOD STAGE.—

1ST CLOSE VALVES 2 3 6 7 & 8 AND OPEN VALVES 1 5 4

2ND CONNECT THE OPERATING CHAIN CLEVISE TO HOLE 21 IN THE CRANK ARM

3RD (a) IF THE INDICATOR READS ZERO (CREST ELEV 700.0) ADJUST THE LENGTH OF THE OPERATING CHAIN SO THAT DISTANCE "C" (SEE SKETCH ABOVE) IS 3'-0"

(b) IF THE INDICATOR READS 10 (CREST ELEV 710.0) ADJUST THE LENGTH OF THE OPERATING CHAIN SO THAT DISTANCE "C" (SEE SKETCH ABOVE) IS 0'-0"

4TH CLOSE VALVE 7

THE CREST GATE IS NOW SET TO RISE IN ADVANCE OF A FLOOD TO REACH A MAXIMUM CREST OF 710.0. TO LOWER THE CREST (OR TO CHECK ITS RISE) OPEN VALVE 8 UNTIL THE INDICATOR SHOWS THE DESIRED CREST. SHOULD IT BE DESIRED TO RAISE THE CREST, WHILE BEING MAINTAINED BELOW ELEVATION 710.0, OPEN VALVE 7 UNTIL THE INDICATOR SHOWS THE DESIRED CREST. THE MECHANISM WILL THEN MAINTAIN THIS CREST AT A VIRTUALLY CONSTANT ELEVATION WITHOUT FURTHER ATTENTION.

NOTE: UNDER CERTAIN CONDITIONS THERE WILL BE A TIME LAG WHILE ADJUSTING THE CREST FOR SEMI-AUTOMATIC CONTROL, HENCE ALLOW A FEW MINUTES FOR THE MECHANISM TO ATTAIN EQUILIBRIUM.

**EMERGENCY MANUAL OPERATION.** SHOULD THE CONTROL MECHANISM BECOME INOPERATIVE, EMERGENCY MANUAL CONTROL MAY BE RESORTED TO. CLOSE VALVES 1 2 3 4 5 6 7 THEN TO LOWER GATE OPEN VALVE 8 TO RAISE GATE CLOSE VALVE 8 AND OPEN VALVE 4.

**OUT OF COMMISSION.** SHOULD IT BE DESIRED TO PUT THE GATE OUT OF COMMISSION, CLOSE VALVES 2 3 4 5 6 7 AND OPEN VALVES 1 & 8. THE CREST GATE WILL THEN REMAIN LOWERED REGARDLESS OF THE FLOOD STAGE.

### TO SET THE CREST GATE CONTROL MECHANISM TO MEET A FULL AUTOMATIC OPERATING REQUIREMENT

**CASE I**—IN WHICH THE MAXIMUM CREST SHALL BE AT ELEVATION 710.0

NOTE: THIS CASE INCLUDES ALL NORMAL OPERATING REQUIREMENTS

1ST SUBTRACT THE WATER SURFACE ELEVATION AT WHICH THE GATE SHALL START TO LOWER, FROM THE WATER SURFACE ELEVATION AT WHICH THE GATE SHALL BE FULLY LOWERED. THE REMAINDER SHALL BE DESIGNATED "RANGE A"

2ND SELECT THE HOLE IN THE CRANK ARM (SEE SKETCH) WHICH MOST NEARLY AGREES WITH THE DESIRED "RANGE A" AND CONNECT THE OPERATING CHAIN CLEVISE THERETO

3RD ON THE CASE I CHART (ABOVE) TRACE THE LINE CORRESPONDING TO THE SELECTED CRANK ARM HOLE TO ITS INTERSECTION WITH THE W.S. ELEV. AT WHICH GATE SHALL START TO LOWER. READ DISTANCE "C" TO THE LEFT

4TH ADJUST THE LENGTH OF THE OPERATING CHAIN SO THAT DISTANCE "C" (SEE SKETCH) AGREES WITH DISTANCE "C" FROM THE CHART

EXAMPLE CASE I

PROBLEM. GATE SHALL START TO LOWER WHEN W.S. REACHES EL 711.0 AND SHALL BE FULLY LOWERED WHEN W.S. REACHES EL 714.0

SOLUTION: 714.0 − 711.0 = 3'-0" = "RANGE A", WHICH CORRESPONDS (SEE SKETCH) TO HOLE 8. FROM CASE I CHART, INTERSECTION OF HOLE 8 LINE AND W.S. EL. 711.0 IS OPPOSITE C = 2'-0" WHICH IS USED

**CASE II**—IN WHICH THE MAXIMUM CREST SHALL BE LESS THAN ELEVATION 710.0

NOTE: IN THIS CASE THE RESERVOIR W.S. AT WHICH GATE STARTS TO LOWER IS ELEV 709.6

1ST SUBTRACT 709.6 FROM THE W.S. ELEV AT WHICH THE GATE SHALL BE FULLY LOWERED. DIVIDE THE REMAINDER BY THE FINAL WHOLE DIGIT AND ITS DECIMAL FRACTION IN THE DESIRED MAXIMUM CREST. THE QUOTIENT SHALL BE DESIGNATED "RATE B"

2ND SELECT THE HOLE IN THE CRANK ARM (SEE SKETCH) WHICH MOST NEARLY AGREES WITH THE DESIRED "RATE B" AND CONNECT THE OPERATING CHAIN CLEVISE THERETO.

3RD ON THE CASE II CHART (ABOVE) TRACE THE LINE CORRESPONDING TO THE SELECTED CRANK ARM HOLE TO ITS INTERSECTION WITH THE DESIRED MAXIMUM CREST. READ DISTANCE "C" TO THE RIGHT

4TH ADJUST THE LENGTH OF THE OPERATING CHAIN SO THAT DISTANCE "C" (SEE SKETCH) AGREES WITH DISTANCE "C" FROM THE CHART

EXAMPLE CASE II

PROBLEM. DESIRED MAXIMUM CREST = EL 707.0 AND GATE SHALL BE FULLY LOWERED WHEN W.S. REACHES EL 715.0.

SOLUTION: 715.0 − 709.6 = 5.4' = 0.48 = "RATE B", WHICH CORRESPONDS (SEE SKETCH) TO HOLE 16. FROM CASE II CHART, INTERSECTION OF HOLE 16 LINE AND MAXIMUM CREST EL. 707.0 IS OPPOSITE C = 1'-5 1/4" WHICH IS USED

### FUNCTION OF VALVES

VALVE 1—THIS VALVE DRAINS THE FLOAT CHAMBER UNDER SEMI-AUTOMATIC CONTROL. THIS ACTION RAISES THE GATE BY CLOSING THE AUTOMATIC CONTROL VALVE

VALVE 2—THIS VALVE IS AN AUXILIARY VALVE TO VALVE 4. IT ADMITS WATER INTO THE GATE CHAMBER THEREBY TENDING TO RAISE THE GATE. THIS VALVE SHOULD BE OPENED ONLY IF VALVE 4 IS OF INSUFFICIENT CAPACITY TO RAISE THE GATE, WHICH MAY HAPPEN IF THE GATE SEALS SHOULD LEAK EXCESSIVELY, OR AN OUTLET VALVE SHOULD BECOME INOPERATIVE IN OPEN POSITION. THIS VALVE SHOULD BE LOCKED CLOSED

VALVE 3—THIS VALVE IS IN SERIES WITH THE AUTOMATIC CONTROL VALVE AND MUST BE CLOSED ONLY IF THE AUTOMATIC CONTROL VALVE SHOULD BECOME INOPERATIVE IN OPEN POSITION

VALVE 4—THIS VALVE ADMITS WATER INTO THE GATE CHAMBER THEREBY TENDING TO RAISE THE GATE

VALVE 5—THIS VALVE ADMITS WATER FROM THE DOMESTIC WATER SUPPLY TO THE GATE CHAMBER. IN THIS WAY THE GATE MAY BE OPENED FOR TESTING DURING THE DRY SEASON.

VALVE 6—THIS VALVE ADMITS WATER FROM THE DOMESTIC WATER SUPPLY TO THE CONTROL FLOAT WELL. THIS VALVE IS USED IN SEMI-AUTOMATIC OPERATION

VALVE 7—THIS VALVE ADMITS WATER FROM THE RESERVOIR INTO THE CONTROL FLOAT WELL. THIS VALVE IS OPEN FOR AUTOMATIC OPERATION

VALVE 8—THIS VALVE BYPASSES THE AUTOMATIC CONTROL VALVE. IT CAN BE USED TO RELEASE WATER FROM THE GATE CHAMBER AND THUS LOWER THE GATE

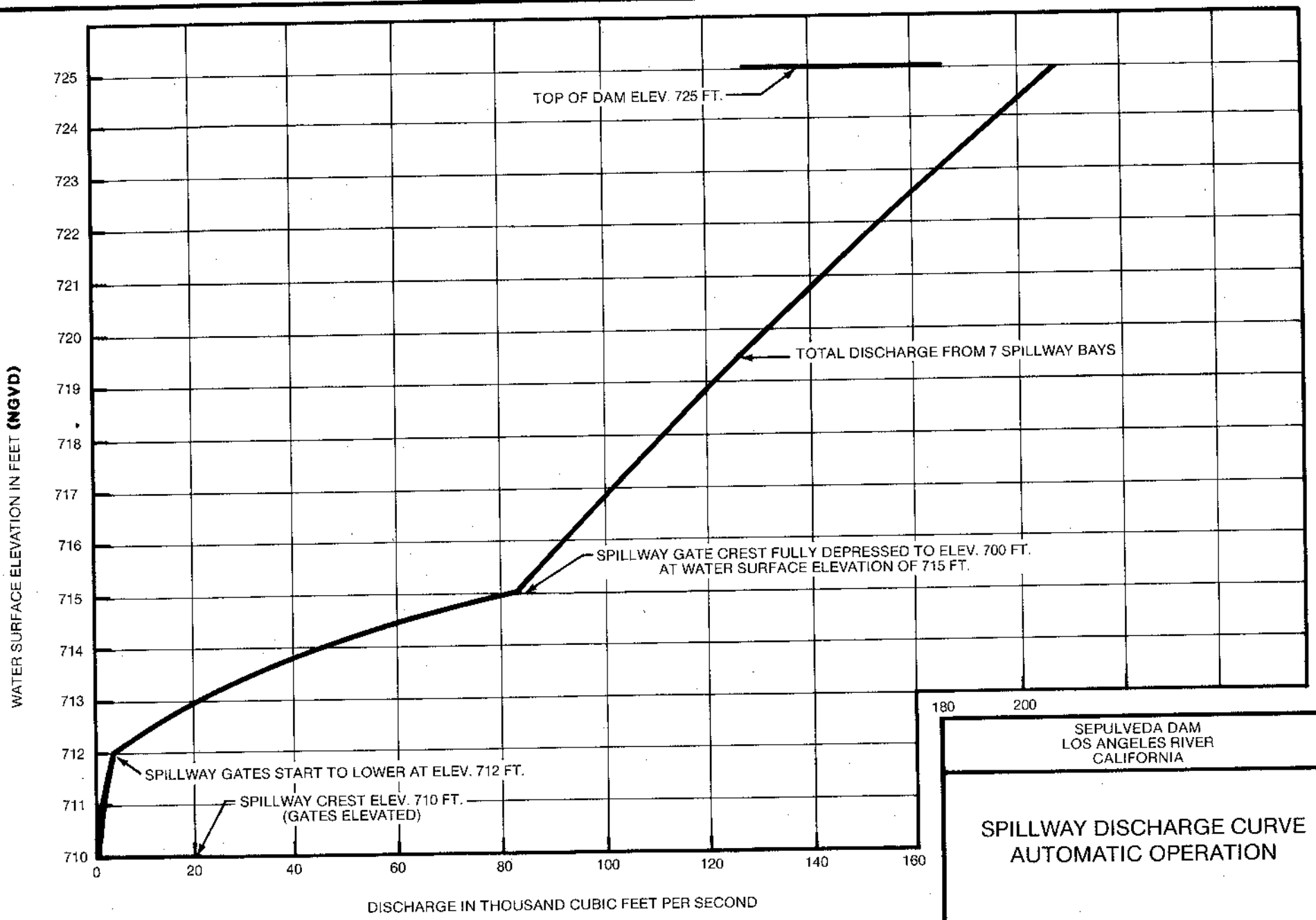
NOTE: ALL ADJUSTMENTS COVERED ABOVE IN CASE I & II SHALL BE MADE WITH CREST GATE FULLY LOWERED AND WITH FLOAT WELL EMPTY

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

# OPERATING INSTRUCTIONS

# FOR CREST GATES

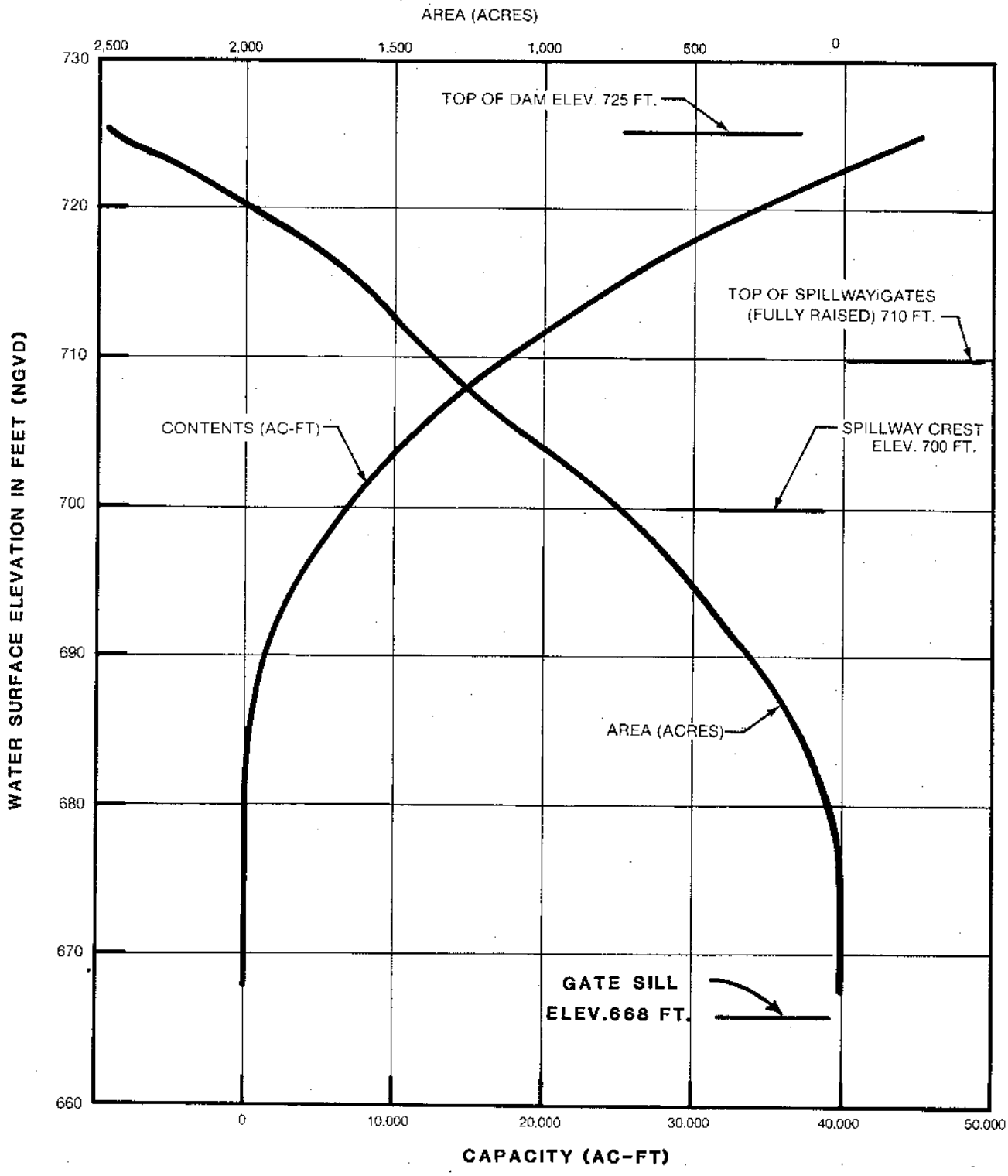
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

SPILLWAY DISCHARGE CURVE
AUTOMATIC OPERATION

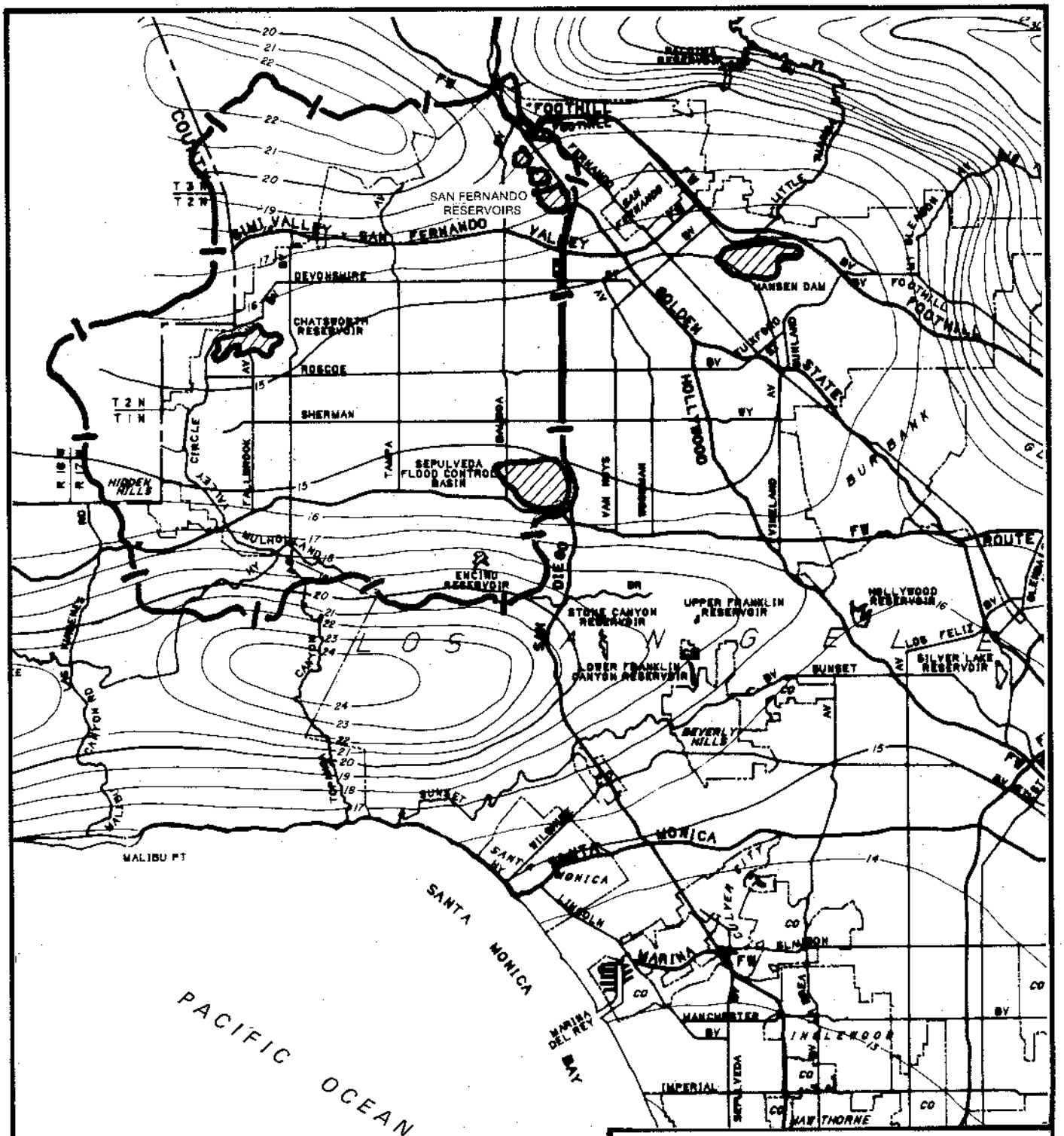
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

WATER SURFACE ELEVATION
VS
CAPACITY AND AREA

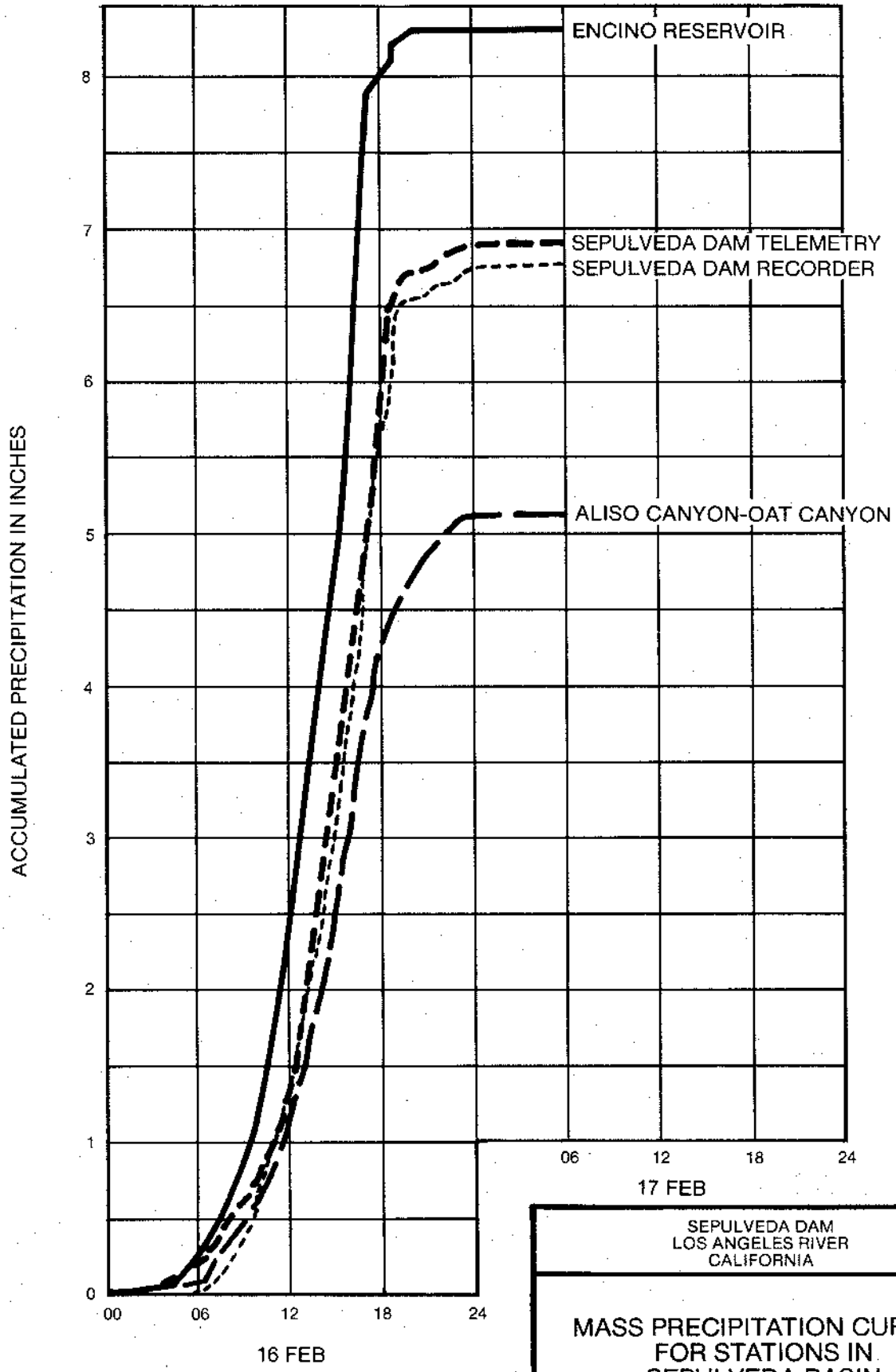
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

**MEAN ANNUAL PRECIPITATION IN INCHES**

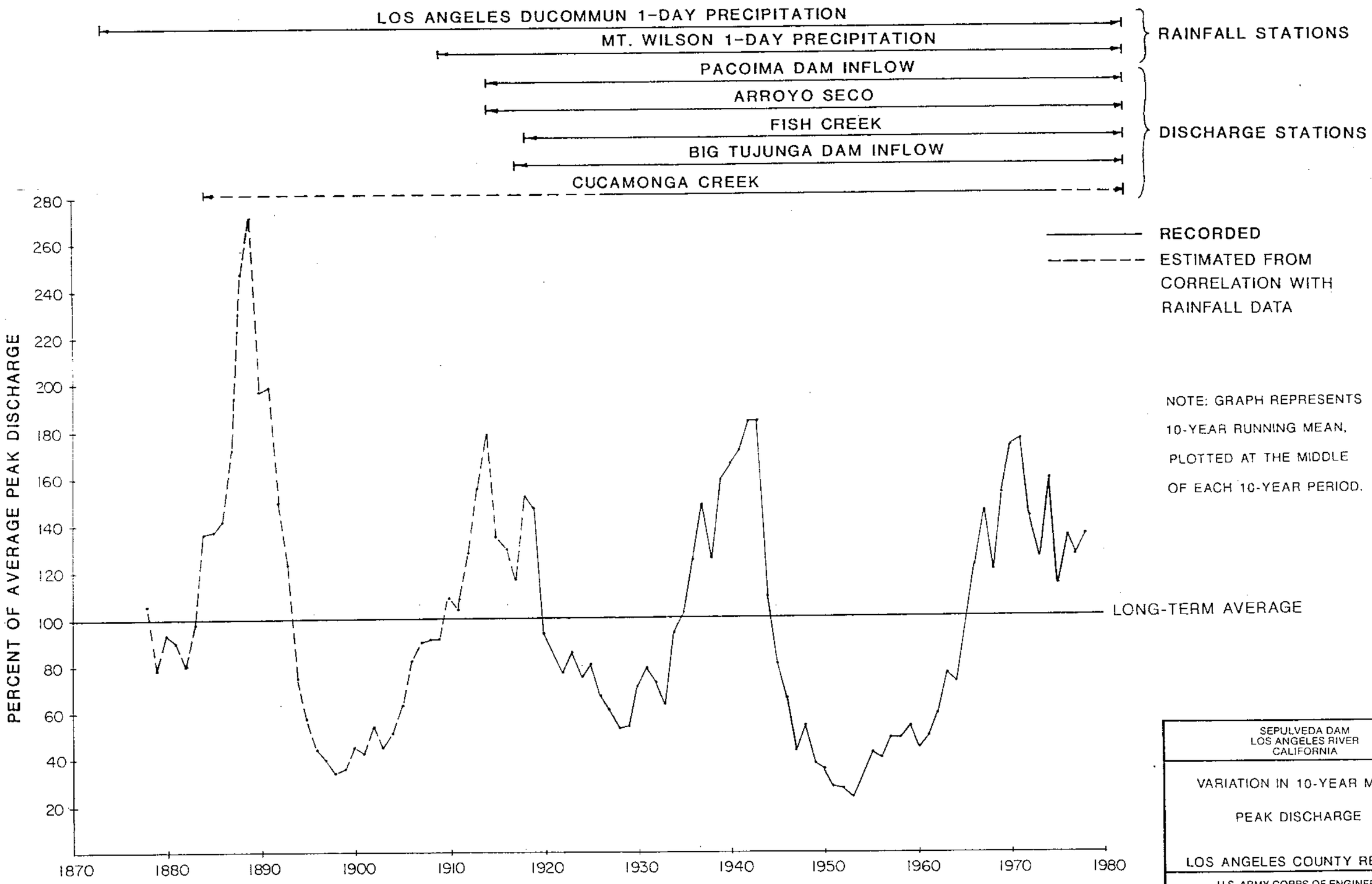
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

MASS PRECIPITATION CURVES
FOR STATIONS IN
SEPULVEDA BASIN
16-17 FEB, 1980

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



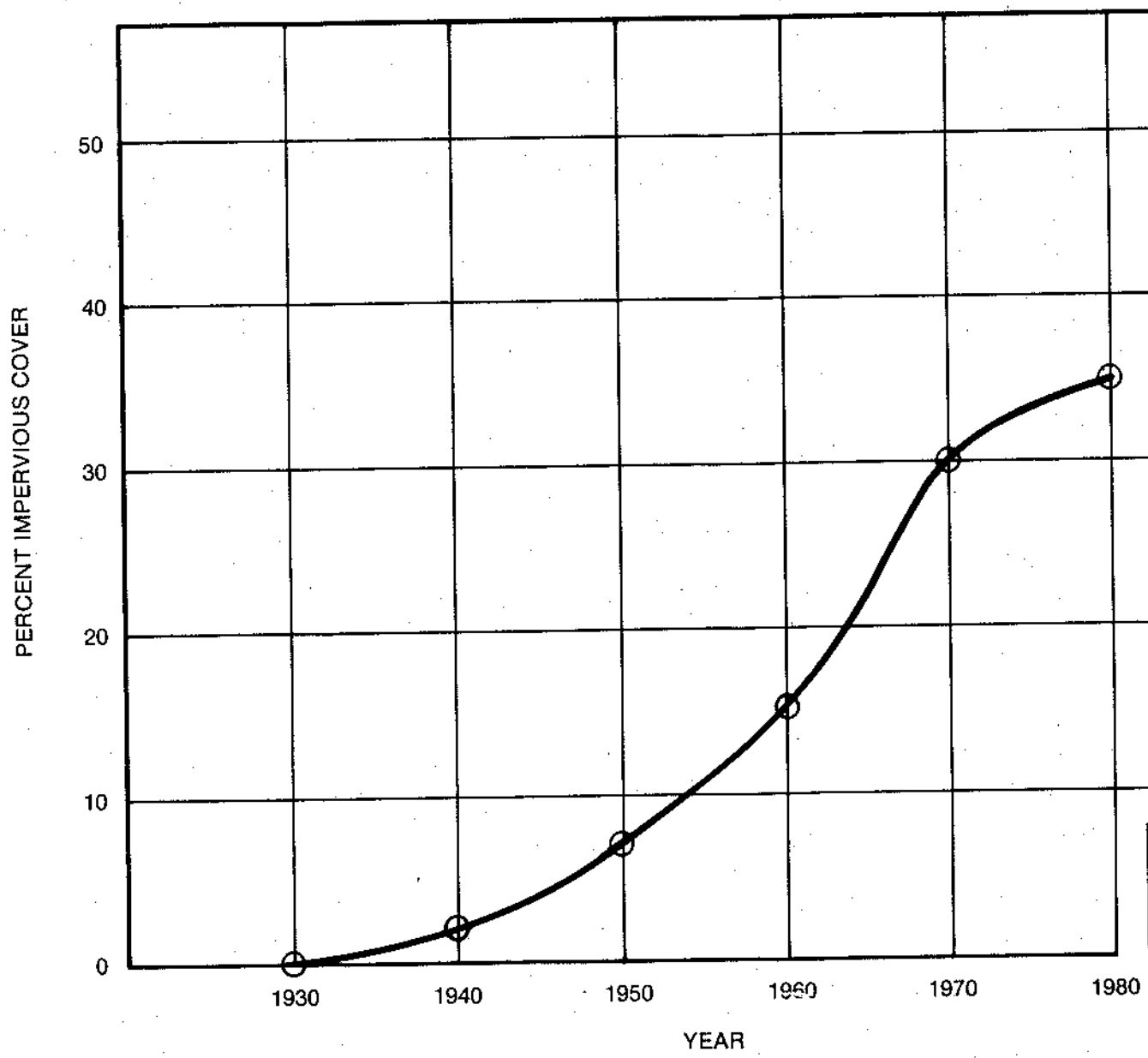

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

VARIATION IN 10-YEAR MEAN

PEAK DISCHARGE

LOS ANGELES COUNTY REGION

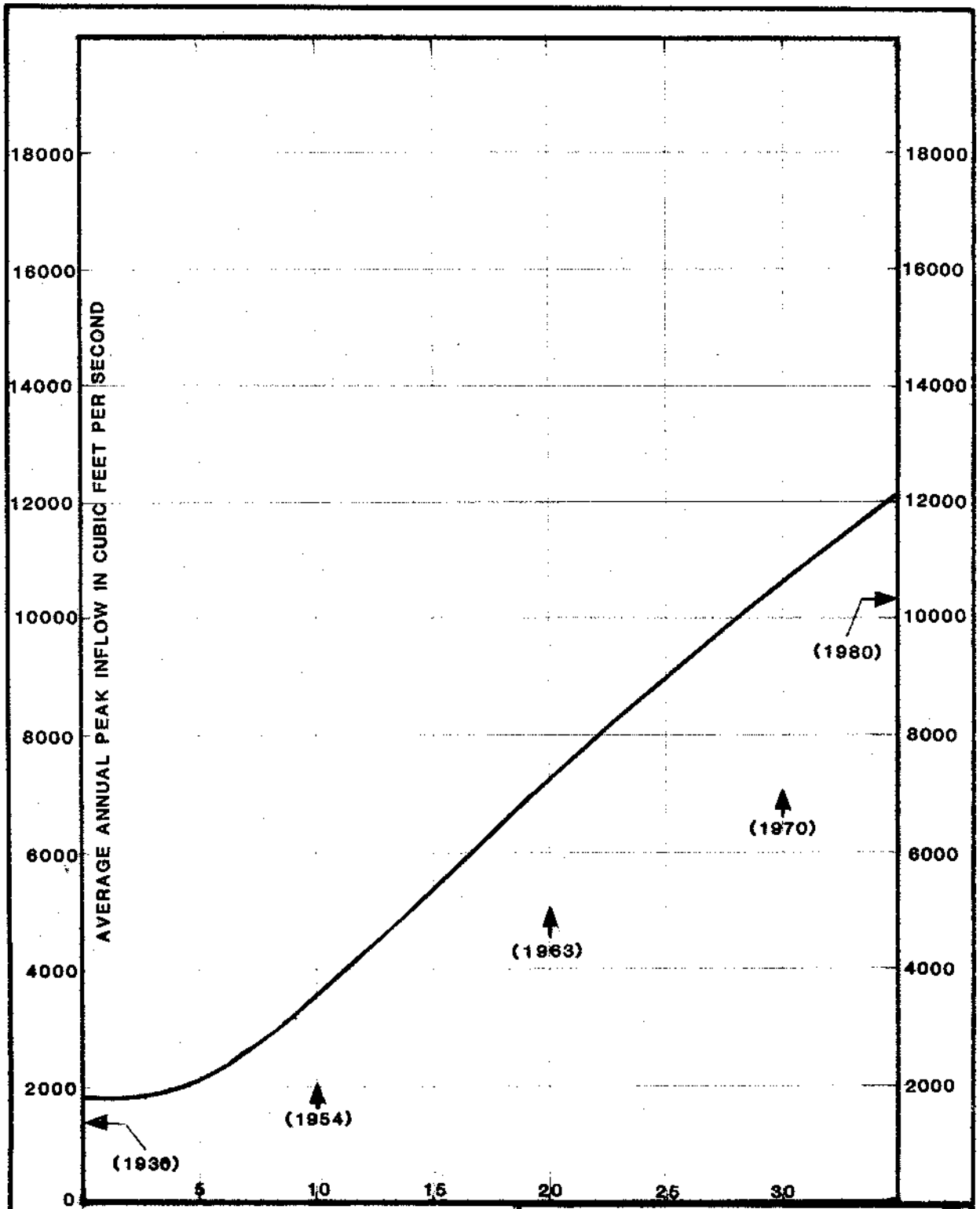
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

ESTIMATED PERCENT OF IMPERVIOUS COVER IN DRAINAGE BASIN

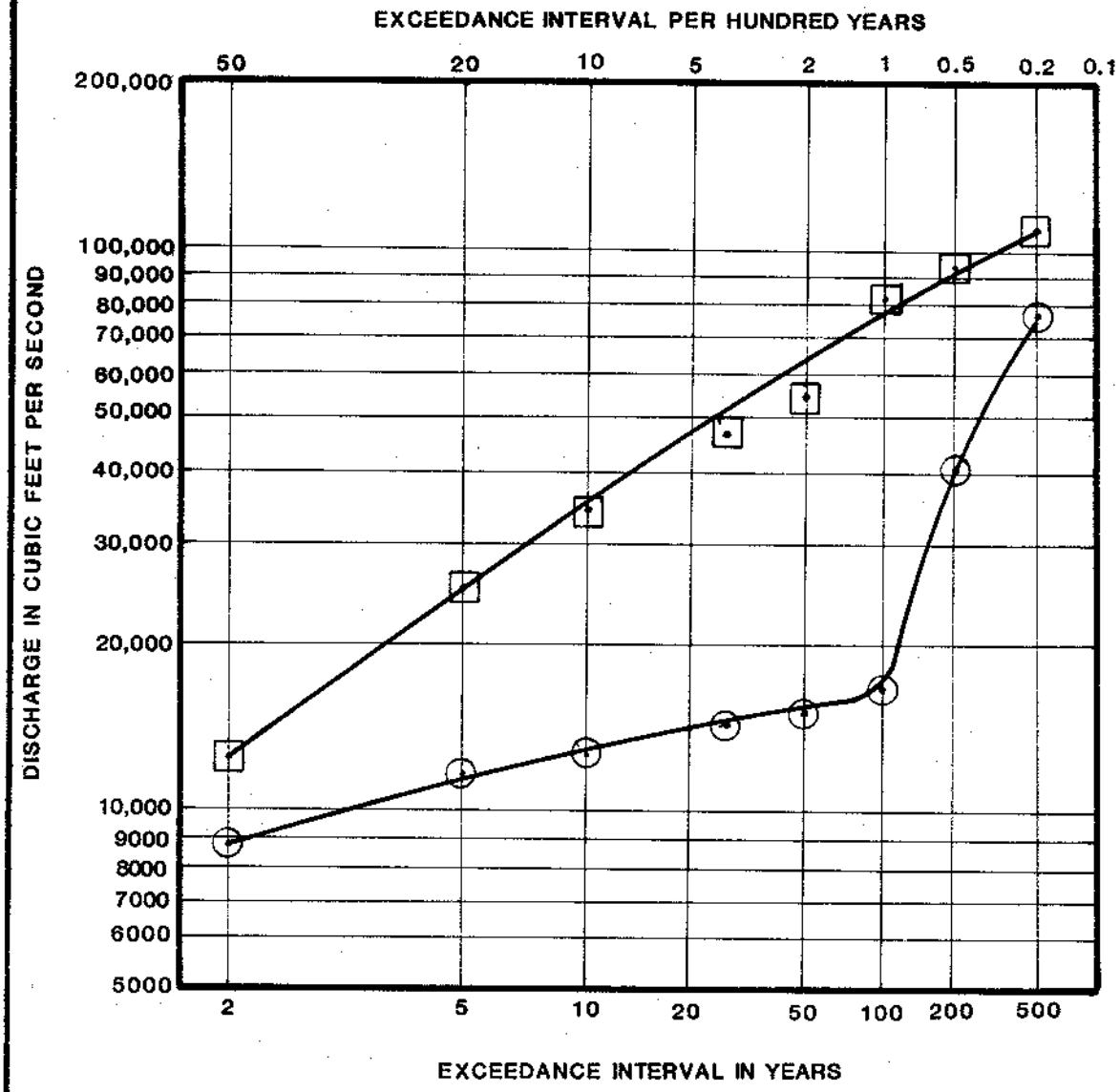
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

**INFLOW VERSUS URBANIZATION**

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




INFLOW

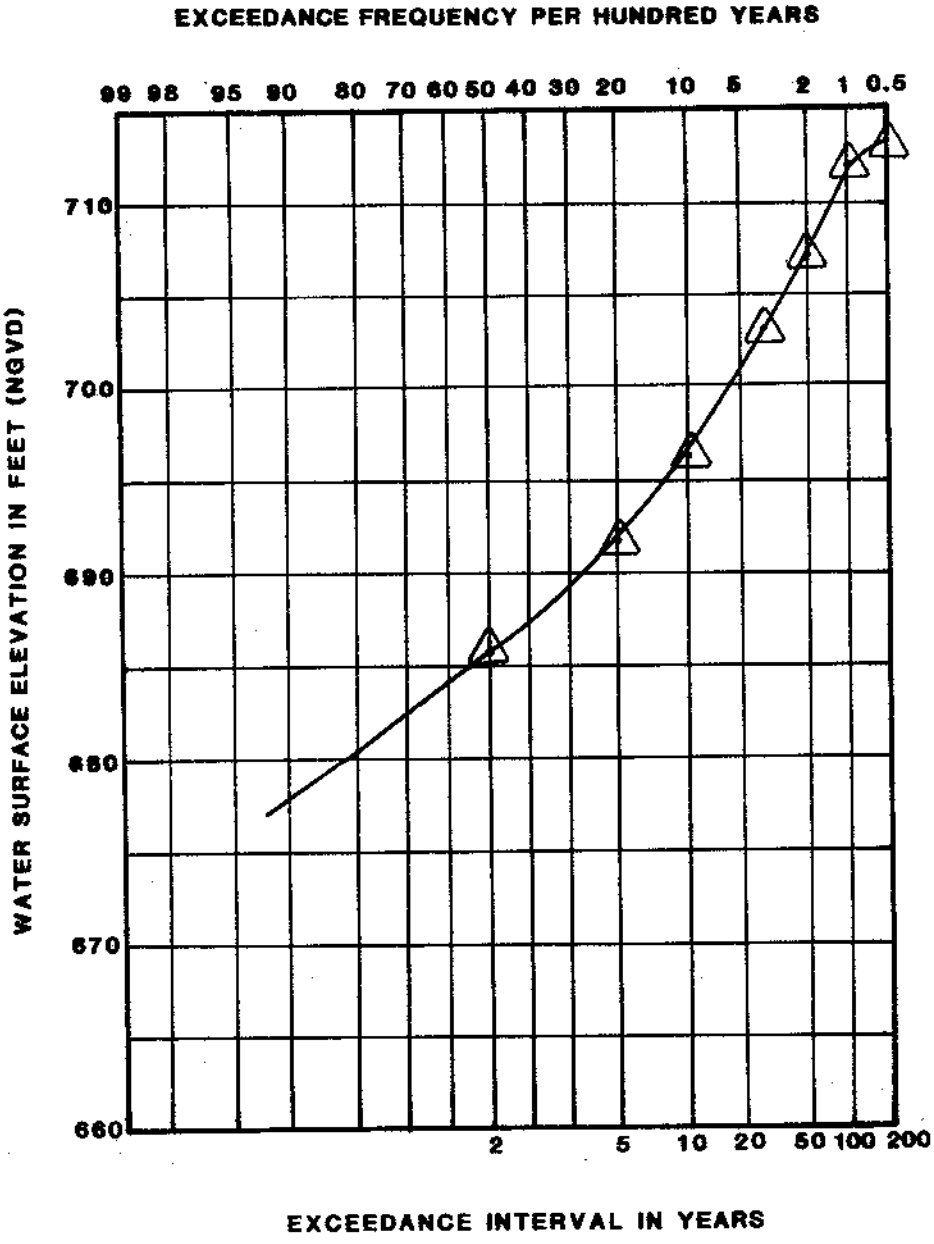
OUTFLOW

Data points derived from a rainfall-runoff analysis as a part a 1985 Corps of Engineers review study. Frequency values from the curves of this plate are listed in Table 4-08.

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

DISCHARGE FREQUENCY CURVES
1980 CONDITIONS

U. S. ARMY ENGINEER DISTRICT
LOS ANGELES, CORPS OF ENGINEERS
TO ACCOMPANY REPORT DATED:

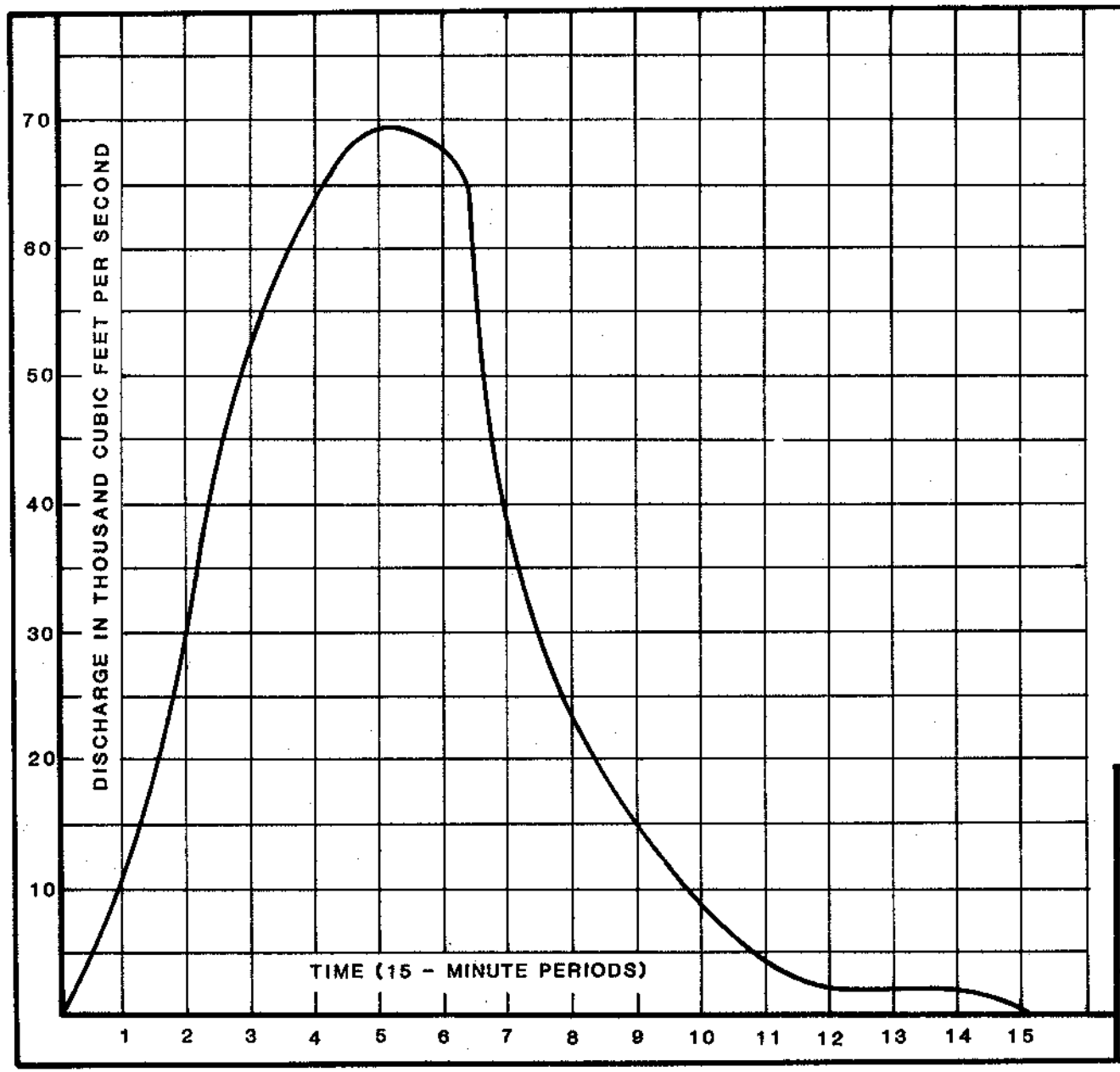



△ Data points derived from a rainfall-runoff analysis as part of a 1985 Corps of Engineers review study. Frequency values from the curves of this plate are listed in Table 4-08.

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

**ELEVATION FREQUENCY CURVE**
**1980 CONDITIONS**

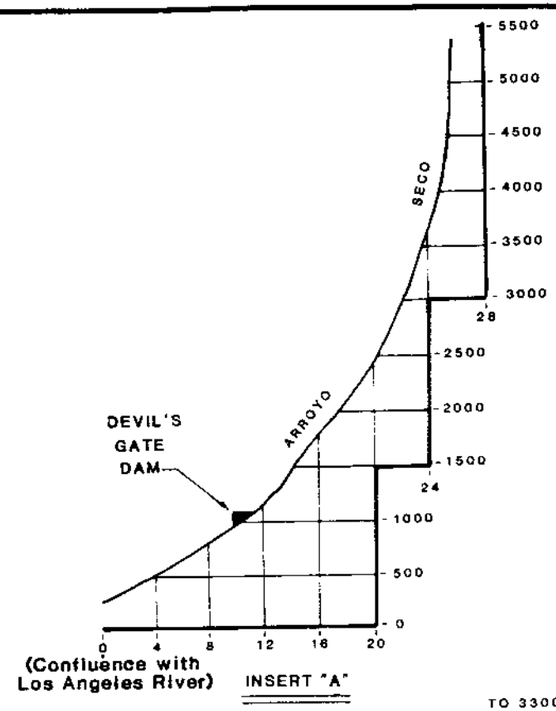
U. S. ARMY ENGINEER DISTRICT
LOS ANGELES, CORPS OF ENGINEERS

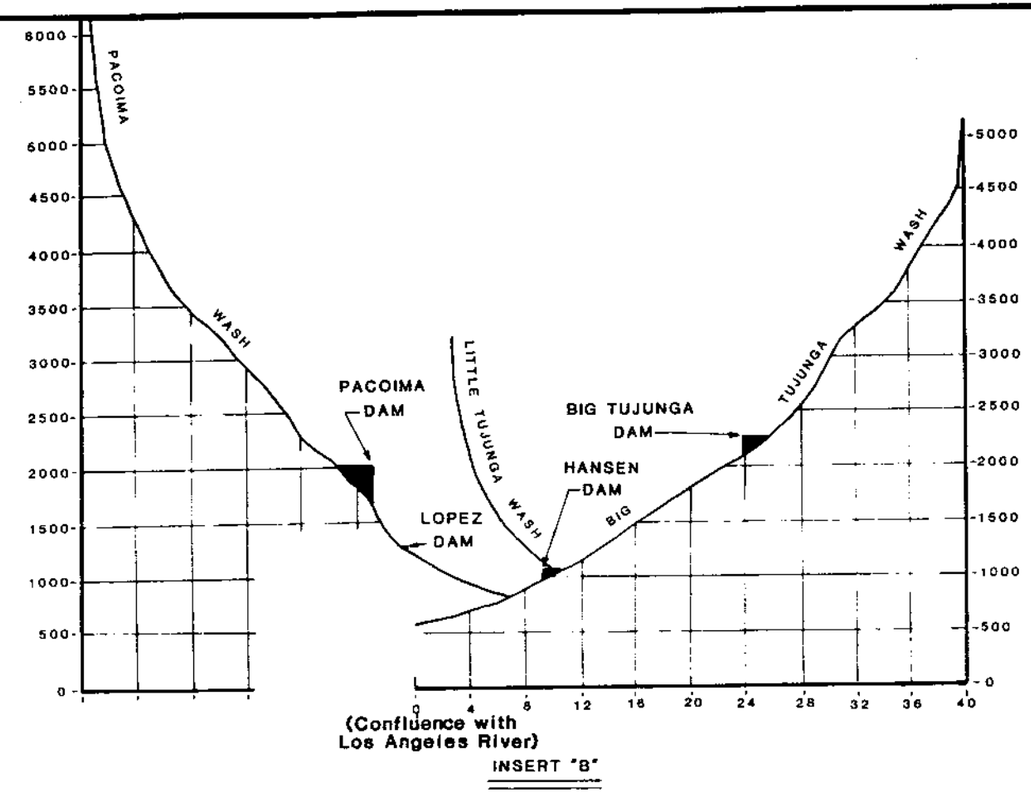


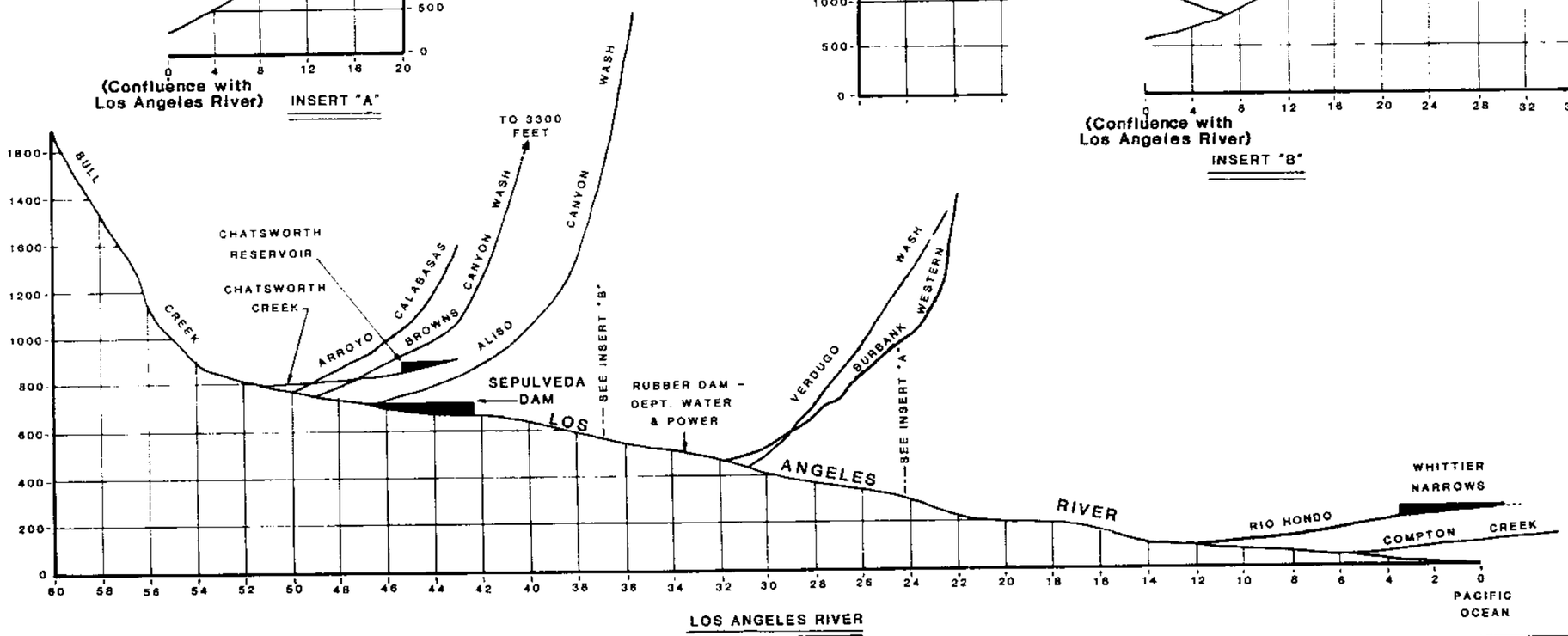

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

UNIT HYDROGRAPH

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



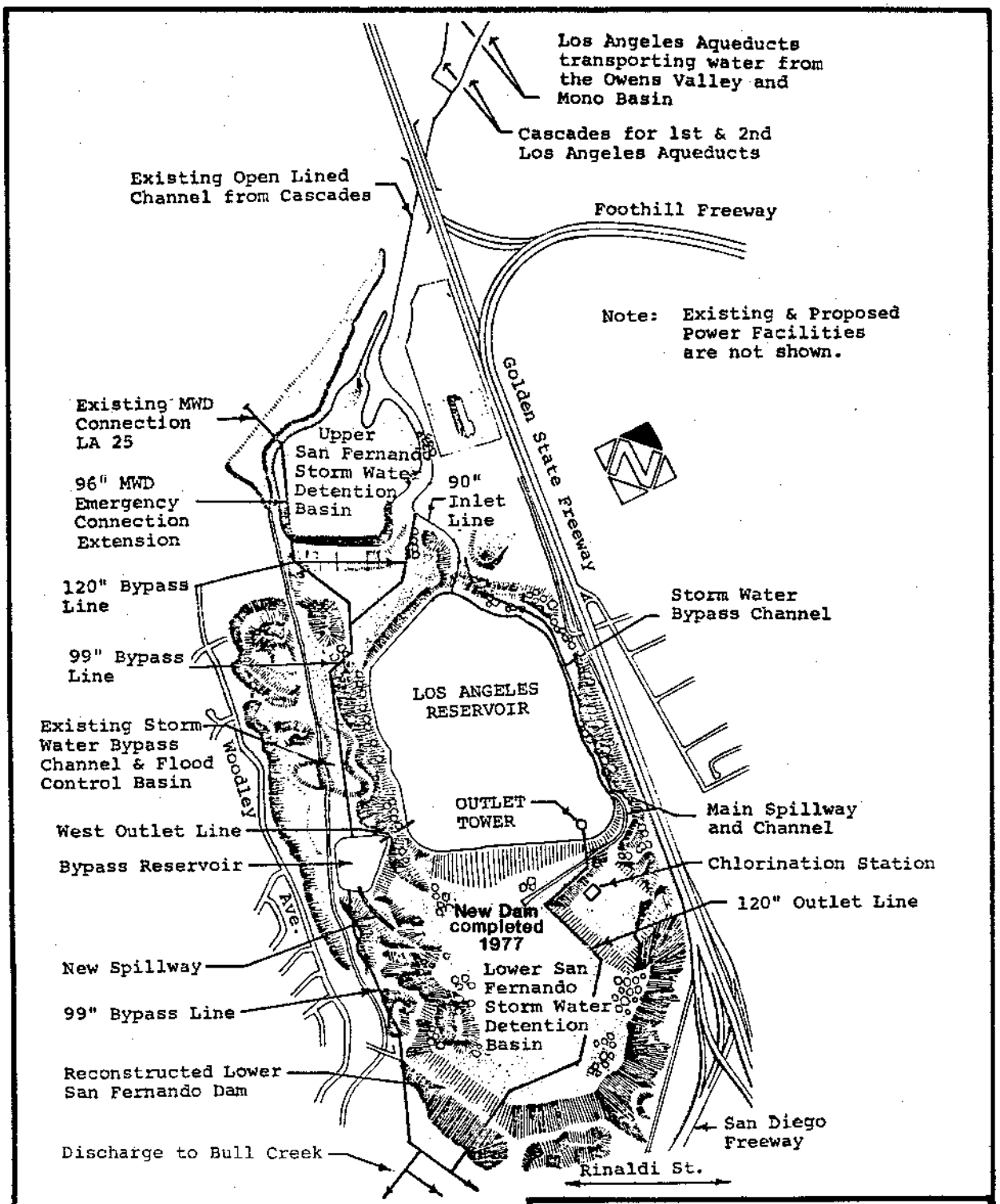

NOTES:

1. HORIZONTAL SCALES INDICATE MILES
2. VERTICAL SCALES INDICATE FEET (NGVD)

LOS ANGELES COUNTY
DRAINAGE AREA (REVIEW)
CALIFORNIA

LOS ANGELES RIVER
& MAJOR TRIBUTARIES
STREAMBED PROFILES

U.S. ARMY ENGINEERING DISTRICT
LOS ANGELES, CORPS OF ENGINEERS




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

**SAN FERNANDO**

**RESERVOIRS**

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

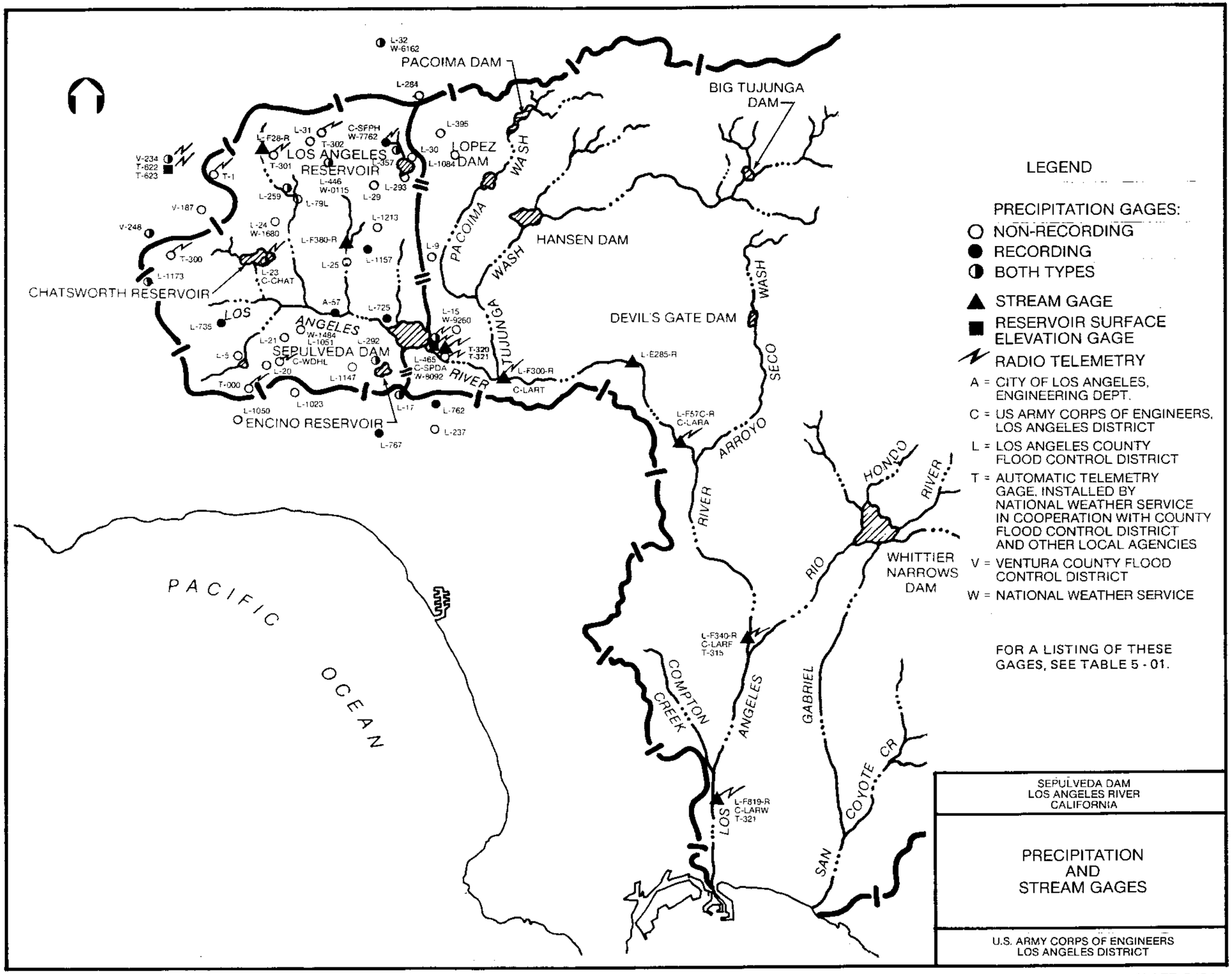
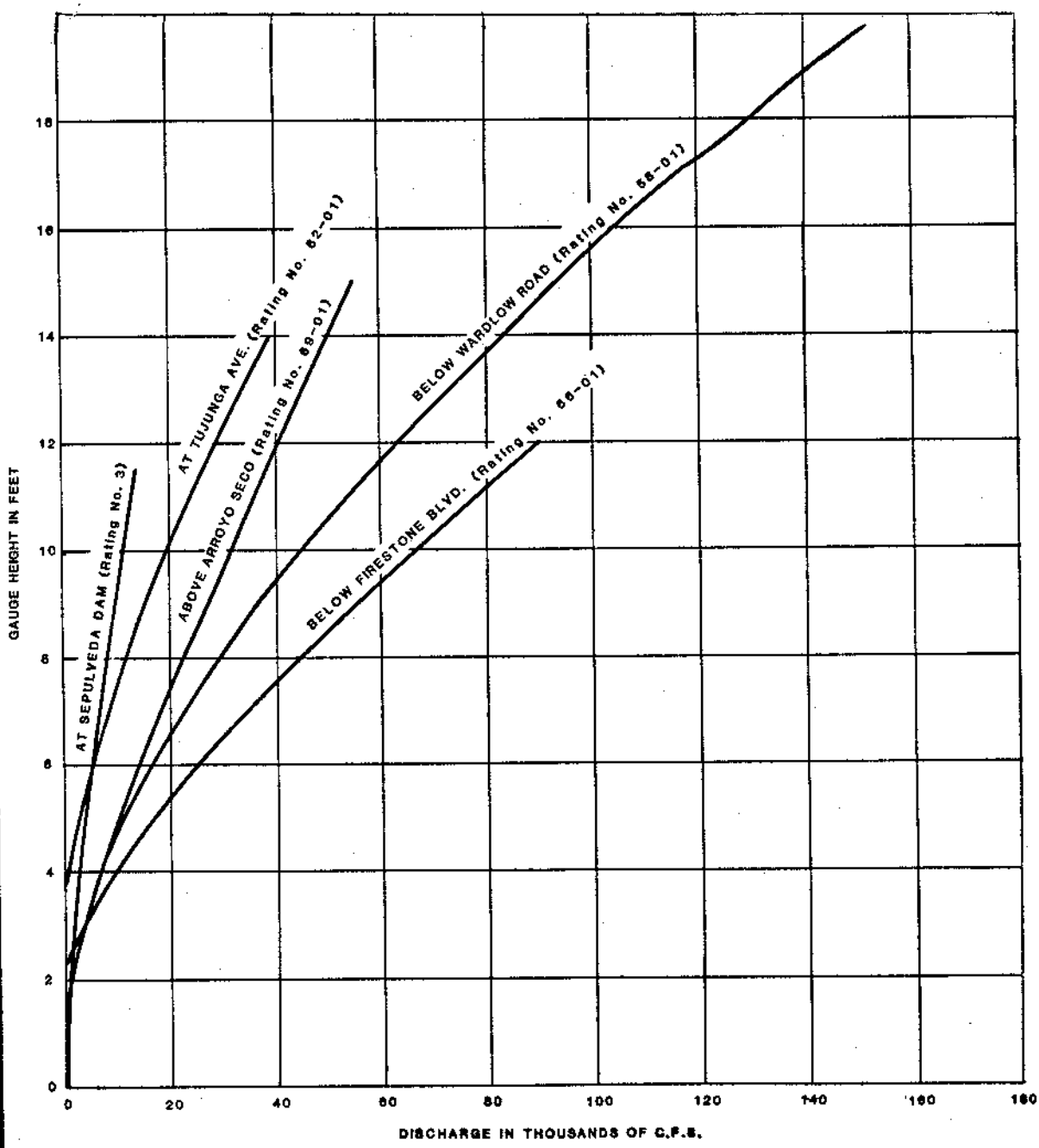

PACOIMA DAM
BIG TUJUNGA DAM
LOS ANGELES RESERVOIR
LOPEZ DAM
HANSEN DAM
CHATSWORTH RESERVOIR
DEVIL'S GATE DAM
SEPULVEDA DAM
ENCINO RESERVOIR
WHITTIER NARROWS DAM
PACIFIC OCEAN
PACOIMA WASH
TUJUNGA WASH
SECO WASH
ARROYO SECO
HONDO RIVER
RIO HONDO
LOS ANGELES RIVER
COMPTON CREEK
SAN GABRIEL
COYOTE CR
L-F28-R
L-F380-R
L-F300-R
L-F57C-R C-LARA
L-F340-R C-LARF T-315
L-F819-R C-LARW T-321
LEGEND
PRECIPITATION GAGES:
NON-RECORDING
RECORDING
BOTH TYPES
STREAM GAGE
RESERVOIR SURFACE ELEVATION GAGE
RADIO TELEMETRY
A = CITY OF LOS ANGELES, ENGINEERING DEPT.
C = US ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT
L = LOS ANGELES COUNTY FLOOD CONTROL DISTRICT
T = AUTOMATIC TELEMETRY GAGE, INSTALLED BY NATIONAL WEATHER SERVICE IN COOPERATION WITH COUNTY FLOOD CONTROL DISTRICT AND OTHER LOCAL AGENCIES
V = VENTURA COUNTY FLOOD CONTROL DISTRICT
W = NATIONAL WEATHER SERVICE
FOR A LISTING OF THESE GAGES, SEE TABLE 5 - 01.
SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA
PRECIPITATION AND STREAM GAGES
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

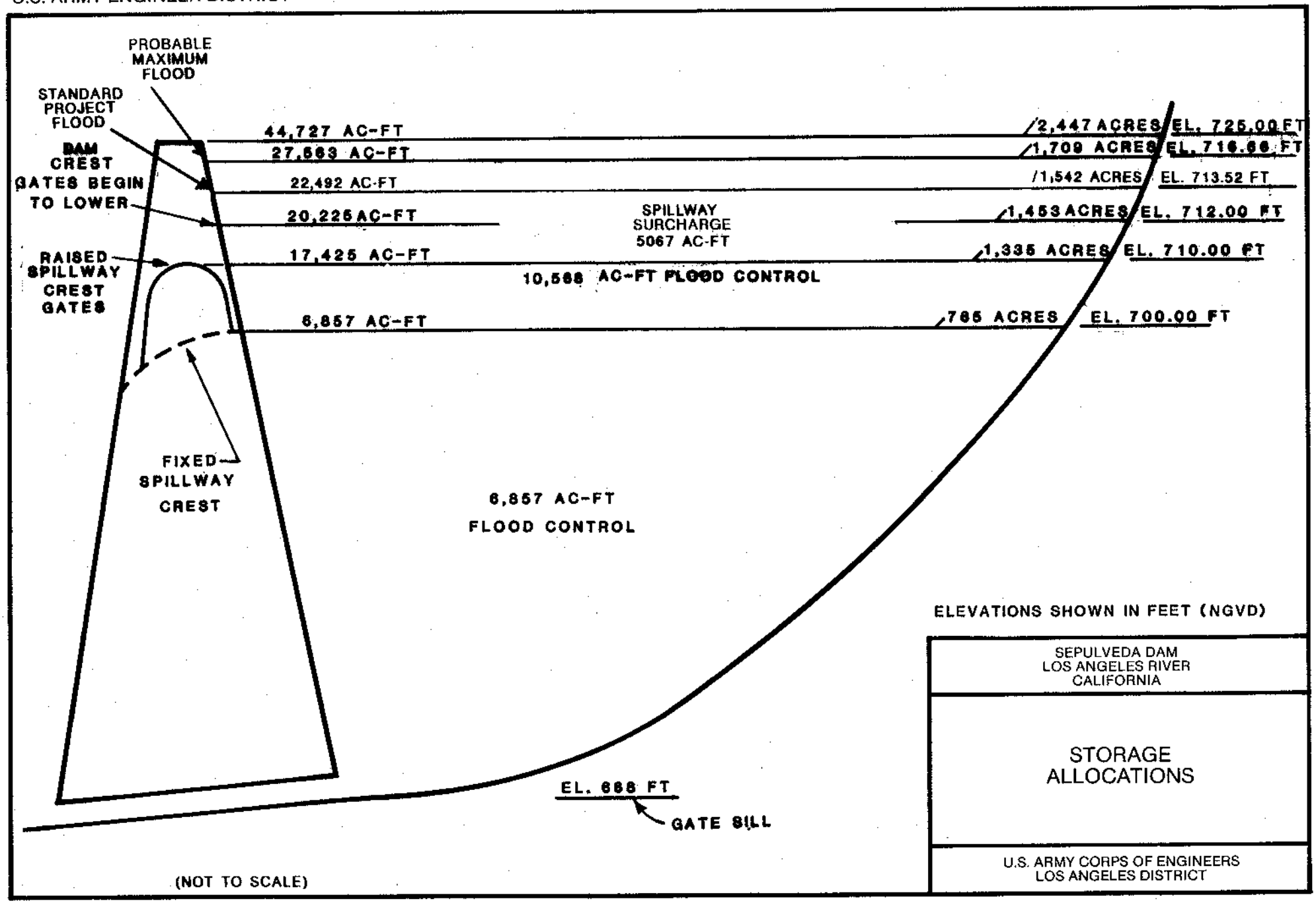
PLATE 5-01




**SEPULVEDA DAM**
**LOS ANGELES RIVER**
**CALIFORNIA**

**RATING CURVES FOR STREAM GAUGES ON THE LOS ANGELES RIVER**

U. S. ARMY ENGINEER DISTRICT
LOS ANGELES, CORPS OF ENGINEERS
TO ACCOMPANY REPORT DATED:


PROBABLE MAXIMUM FLOOD
STANDARD PROJECT FLOOD
DAM CREST
GATES BEGIN TO LOWER
RAISED SPILLWAY CREST GATES
FIXED SPILLWAY CREST
44,727 AC-FT
27,563 AC-FT
22,492 AC-FT
20,225 AC-FT
17,425 AC-FT
6,857 AC-FT
2,447 ACRES
EL. 725.00 FT
1,709 ACRES
EL. 716.66 FT
1,542 ACRES
EL. 713.52 FT
1,453 ACRES
EL. 712.00 FT
1,335 ACRES
EL. 710.00 FT
765 ACRES
EL. 700.00 FT
SPILLWAY SURCHARGE 5067 AC-FT
10,568 AC-FT FLOOD CONTROL
6,857 AC-FT
FLOOD CONTROL
EL. 668 FT
GATE SILL
(NOT TO SCALE)
ELEVATIONS SHOWN IN FEET (NGVD)
SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA
STORAGE ALLOCATIONS
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

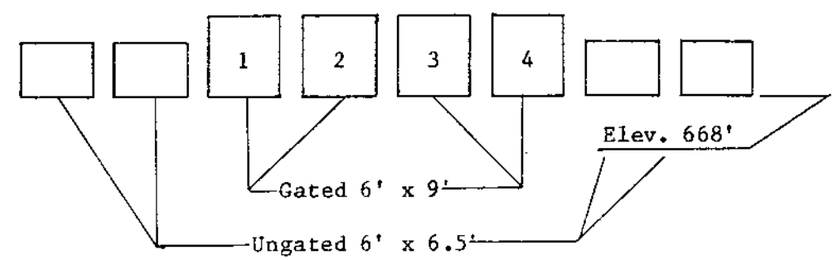
## Sepulveda Dam Reservoir Regulation Schedule
(for rising and falling stages)

| Step No | When reservoir water surface is between elevation | Gate setting for gates as indicated: No. 1 | No. 2 | No. 3 | No. 4 | Computed discharge* | Downstream gage height |
|---|---|---|---|---|---|---|---|
| | Feet, NGVD | Feet of opening | Feet of opening | Feet of opening | Feet of opening | Cubic feet per second | Feet |
| 1.... | 668.0 & 710.2 | 9.0 | 9.0 | 9.0 | 9.0 | 0 to 16,780 | 0 - 13.61 |
| 2.... | 710.2 & 710.7 | 7.6 | 9.0 | 9.0 | 7.6 | 15,770 to 16,550 | 13.14 - 13.48 |
| 3.... | 710.7 & 711.3 | 7.6 | 7.6 | 7.6 | 7.6 | 15,530 to 16,830 | 13.04 - 13.66 |
| 4.... | 711.3 & 711.6 | 6.0 | 7.6 | 7.6 | 6.0 | 15,870 to 16,760 | 13.18 - 13.60 |
| 5.... | 711.6 & 712.0** | 6.0 | 5.7 | 5.7 | 6.0 | 15,680 to 16,890 | 13.09 - 13.67 |
| 6.... | 712.0 & 712.2 | 0.0 | 4.5 | 4.5 | 0.0 | 13,420 to 16,620 | 11.95 - 13.52 |
| 7.... | Above 712.2 | 0.0 | 0.0 | 0.0 | 0.0 | 14,400+ | 12.45 |

*Includes discharge of ungated outlets. Crest gates in action above elevation 710.0 feet, NGVD (National Geodetic Vertical Datum).

**At elevation 712.0 feet, NGVD, crest gates automatically begin to lower. At elevation 715.0 feet, NGVD, crest gates are completely lowered.

OUTLETS
(Looking Downstream)




### DAM OPERATOR INSTRUCTIONS

1. Communication with the District Office is available.

   a. Notify the Reservoir Operations Center when a gate change will be required according to the schedule.

   b. Notify the Reservoir Operations Center if unable to set the gates as instructed.

2. Communication with the District Office is not available.

   a. Try to reestablish communications through the Los Angeles County Department of Public Works (WUK 4470).

   b. (i) Rising Stages. Allow a period of one half hour to pass to reestablish communication with the District Office. If after one half hour communication is not reestablished follow the gate operation schedule.

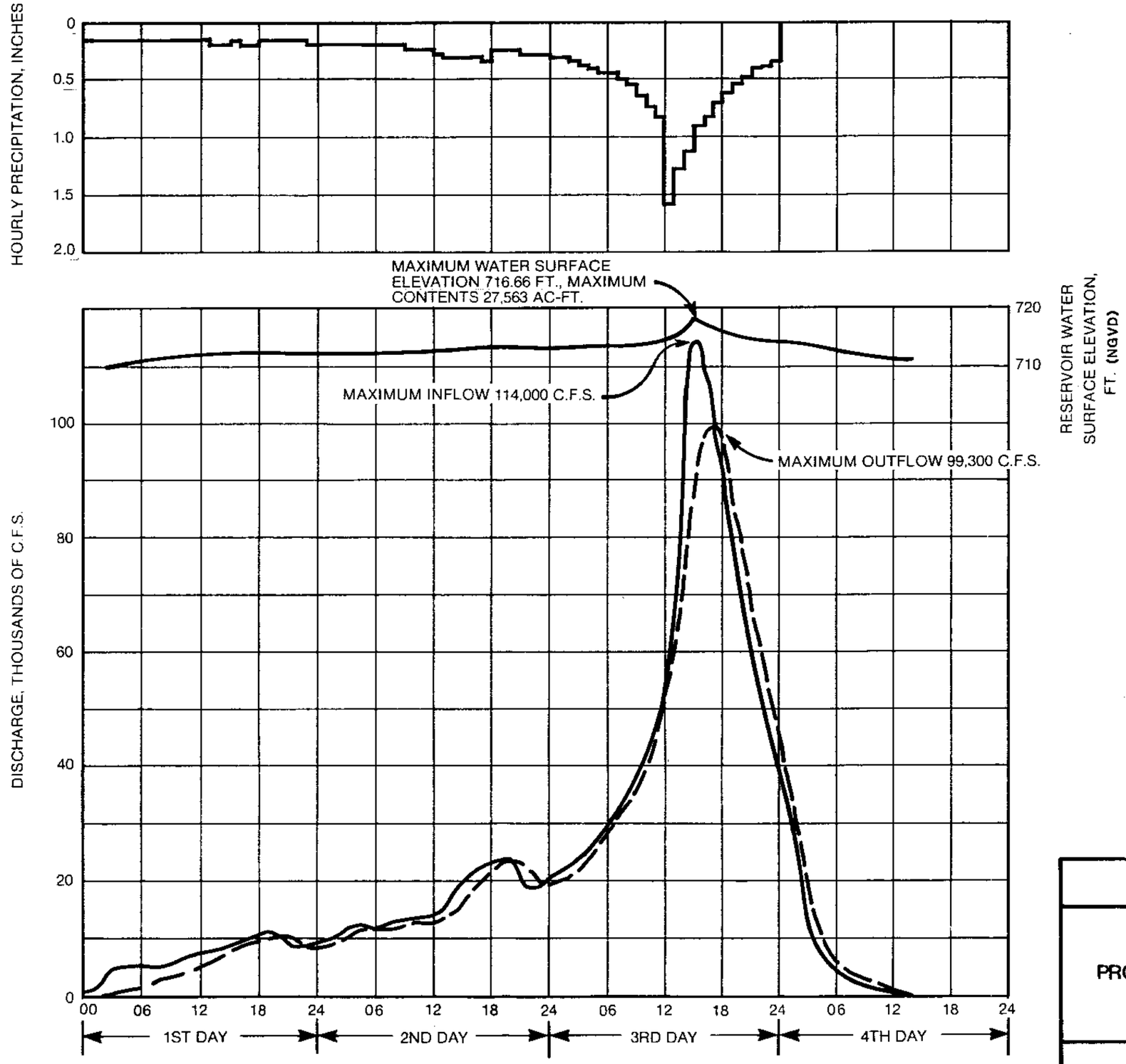
   (ii) Falling Stages. Maintain current downstream gage height until communication is reestablished.

   c. If one of the gates cannot be operated, adjust the remaining gates gradually until the downstream gage height agrees with scheduled values. Keep a close check on gage height and change the gate openings as often as required. If the downstream gage height is not obtainable, adjust the gates that are functioning so that the gate openings are equal to the sum of the openings shown in the schedule.

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

RESERVOIR REGULATION
SCHEDULE

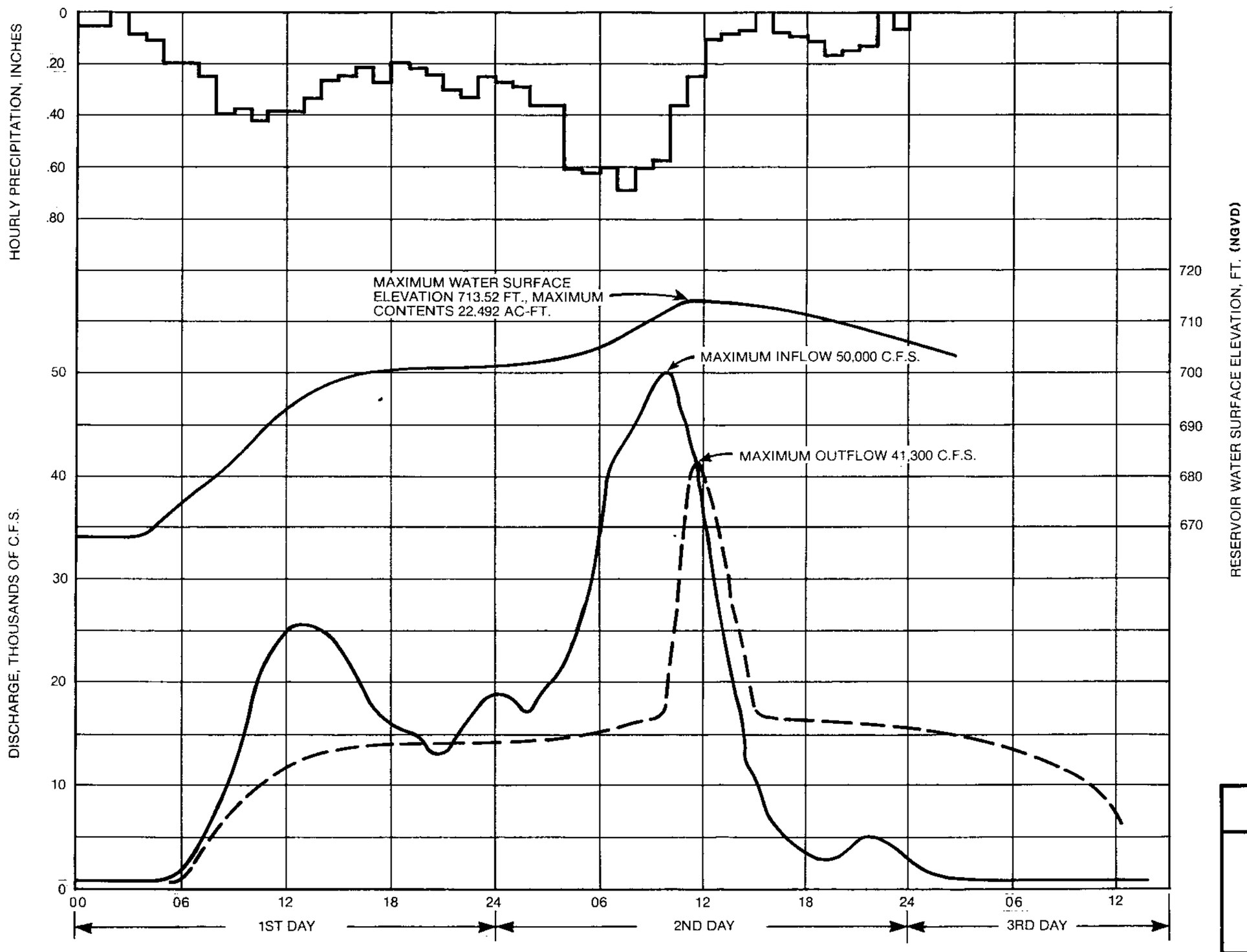
U. S. ARMY ENGINEER DISTRICT
LOS ANGELES, CORPS OF ENGINEERS




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

**PROBABLE MAXIMUM FLOOD ROUTING**

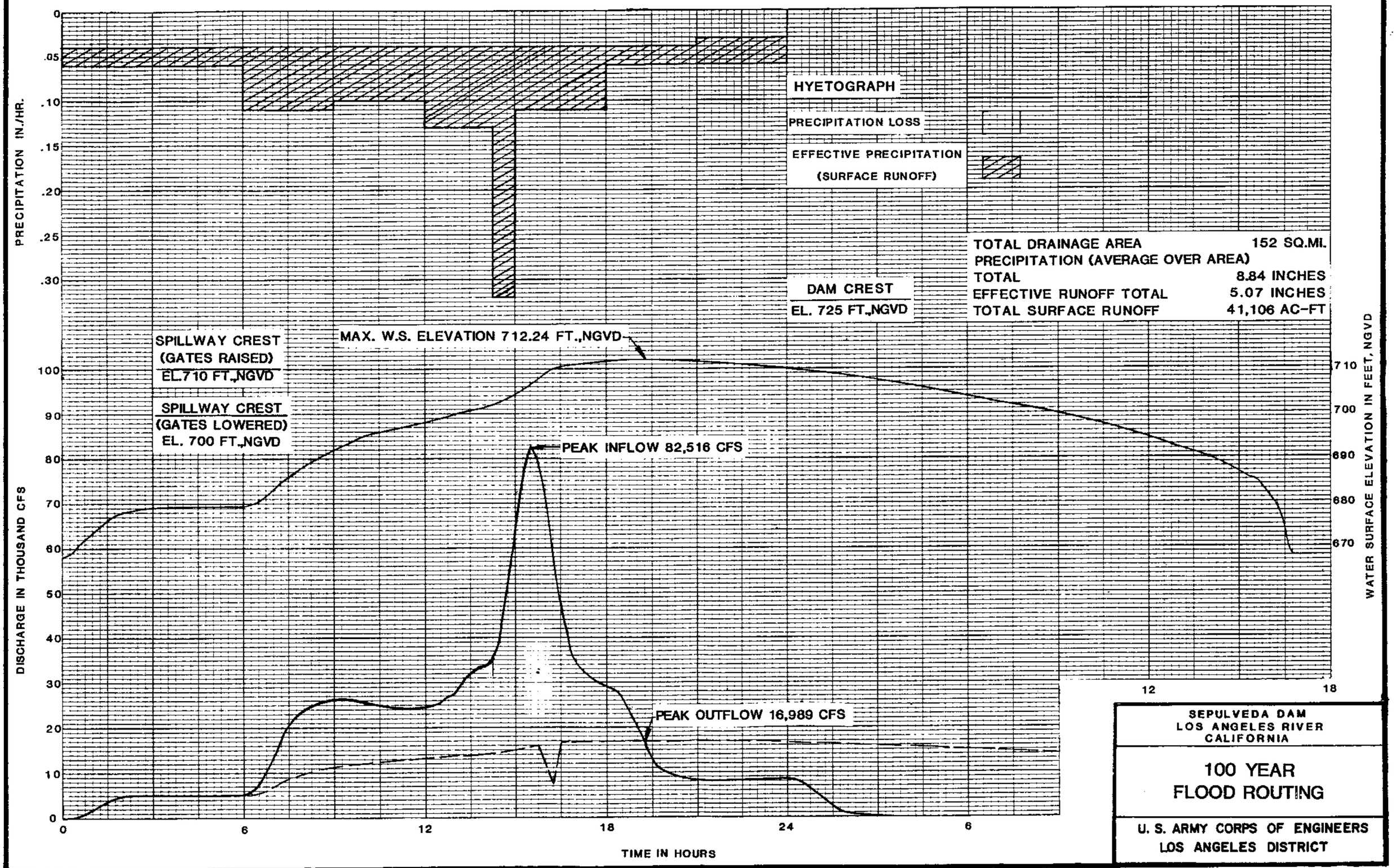
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

STANDARD PROJECT
FLOOD ROUTING

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

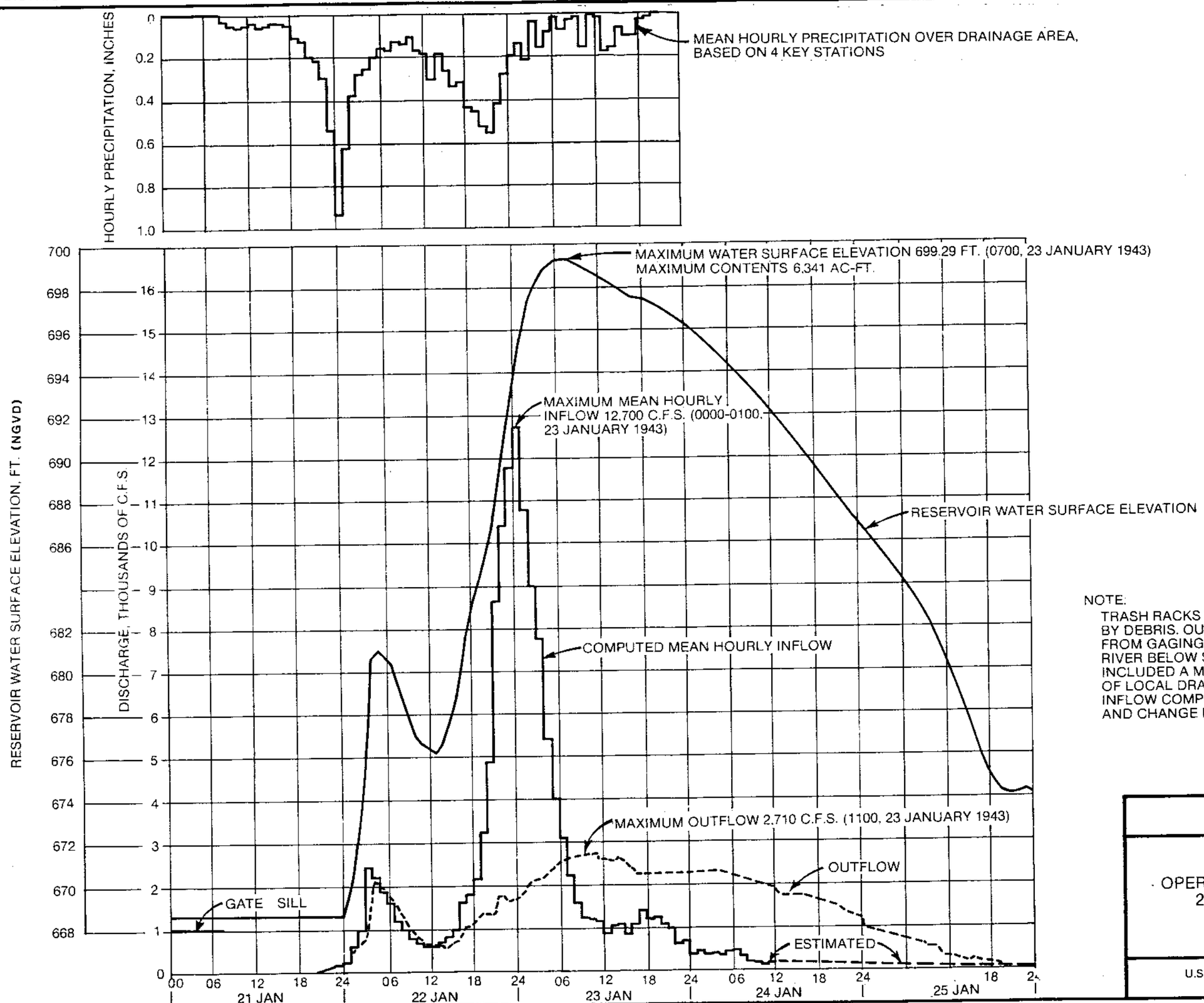



SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

100 YEAR
FLOOD ROUTING

U. S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

PLATE 8-03

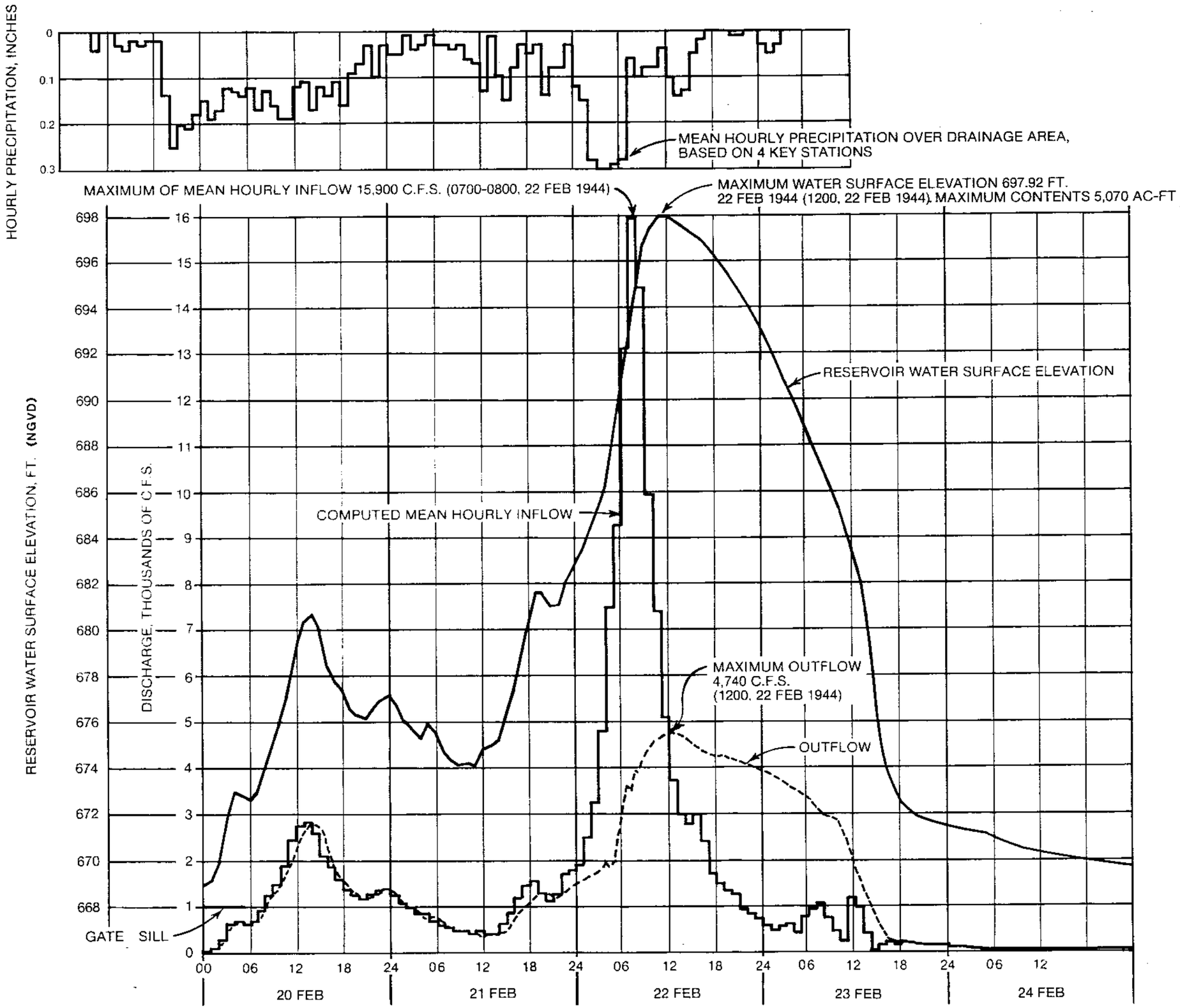



NOTE:
TRASH RACKS WERE PARTIALLY BLOCKED BY DEBRIS. OUTFLOW WAS DETERMINED FROM GAGING STATION ON LOS ANGELES RIVER BELOW SEPULVEDA BLVD WHICH INCLUDED A MAXIMUM OF SOME 100 C.F.S. OF LOCAL DRAINAGE BELOW THE DAM. INFLOW COMPUTED ON BASIS OF OUTFLOW AND CHANGE IN STORAGE.

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

OPERATION HYDROGRAPHS
21-25 JANUARY 1943

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




NOTES:

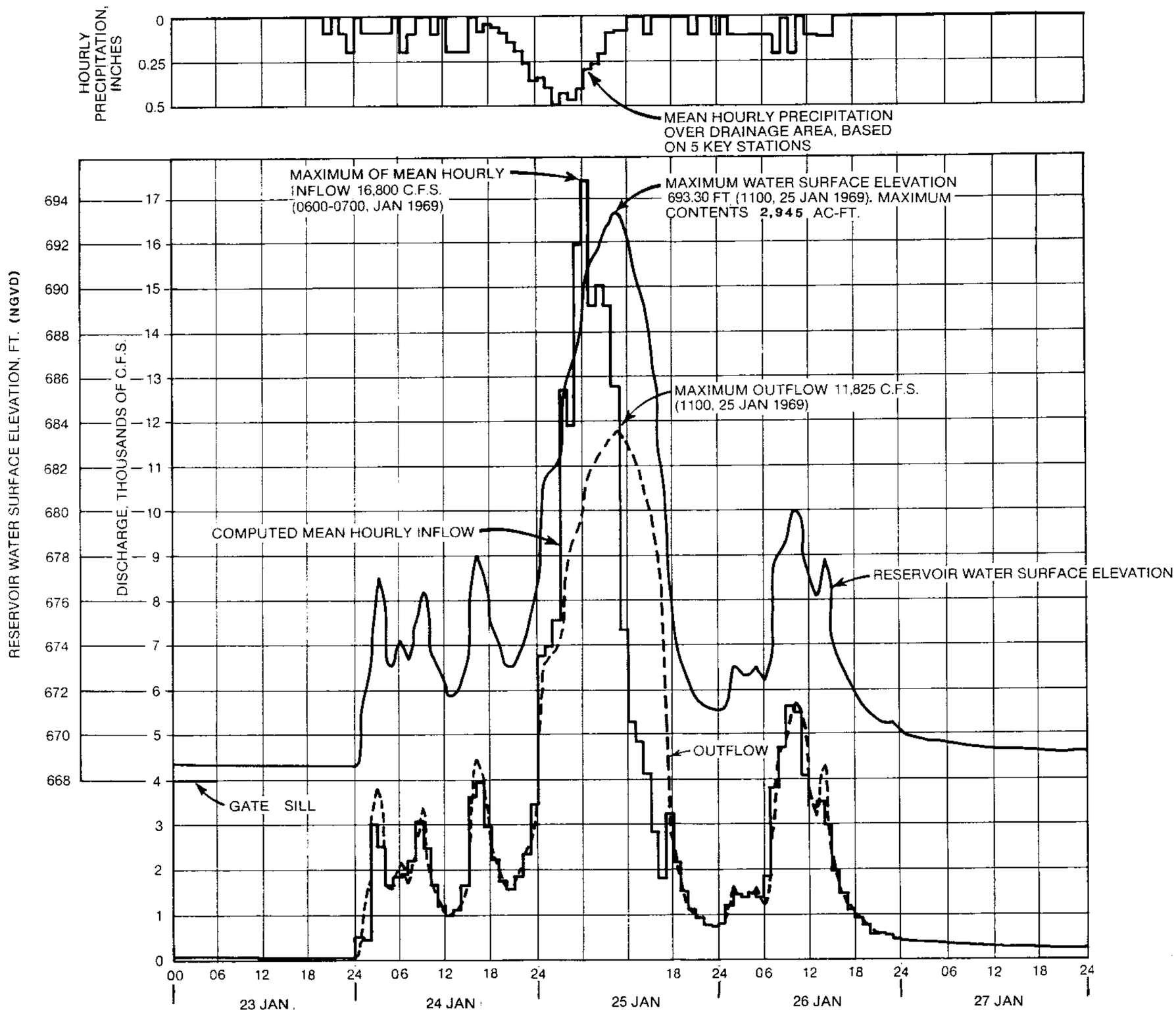
RAINFALL IN SOUTH PORTION OF DRAINAGE AREA OF CLOUDBURST INTENSITY PROBABLY CAUSED PEAK.

OUTFLOW AFFECTED BY CLOGGING OF TRASH RACKS

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

OPERATION HYDROGRAPHS
20-24 FEBRUARY 1944

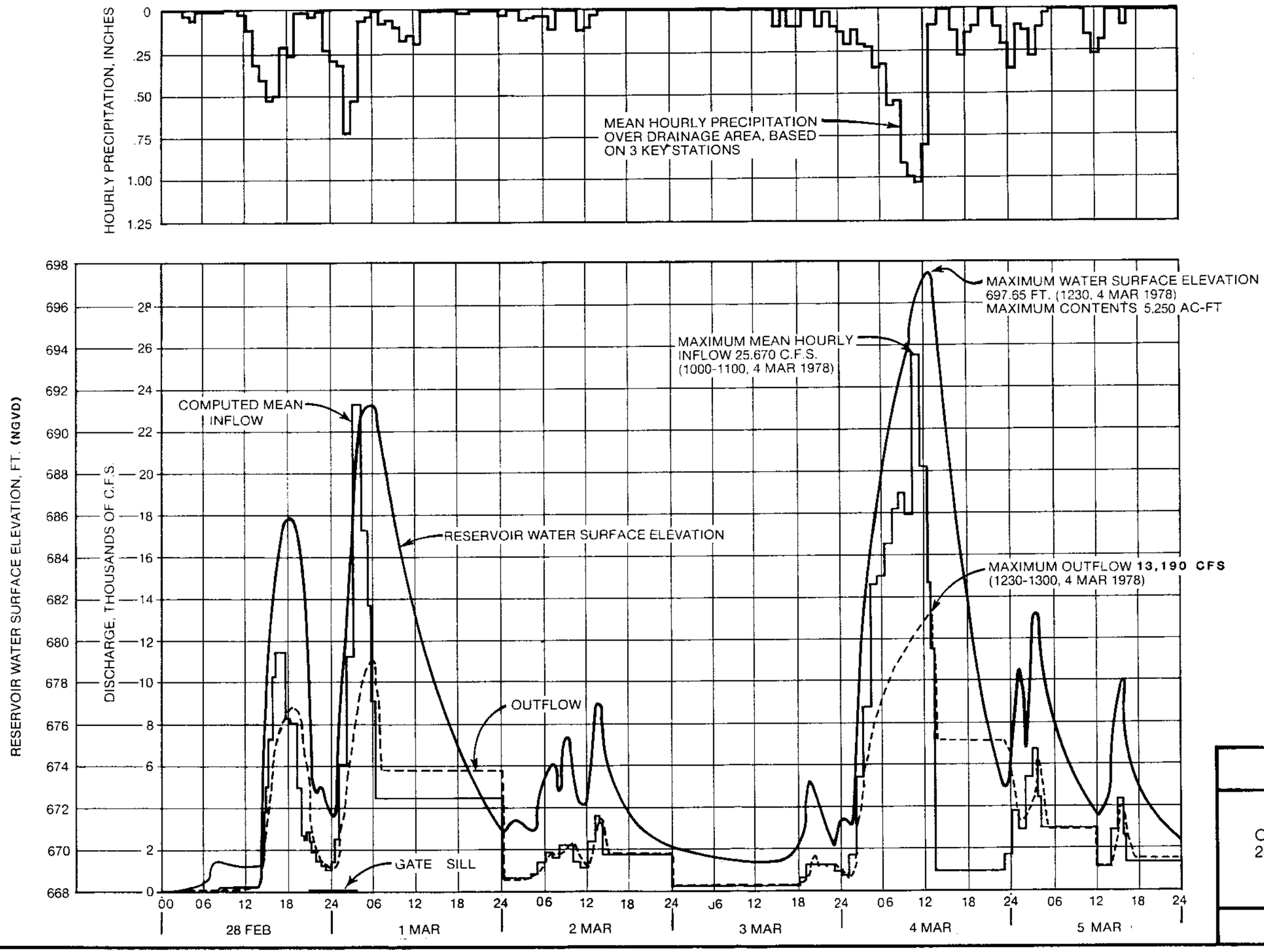
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

OPERATION HYDROGRAPHS
23-27 JANUARY 1969

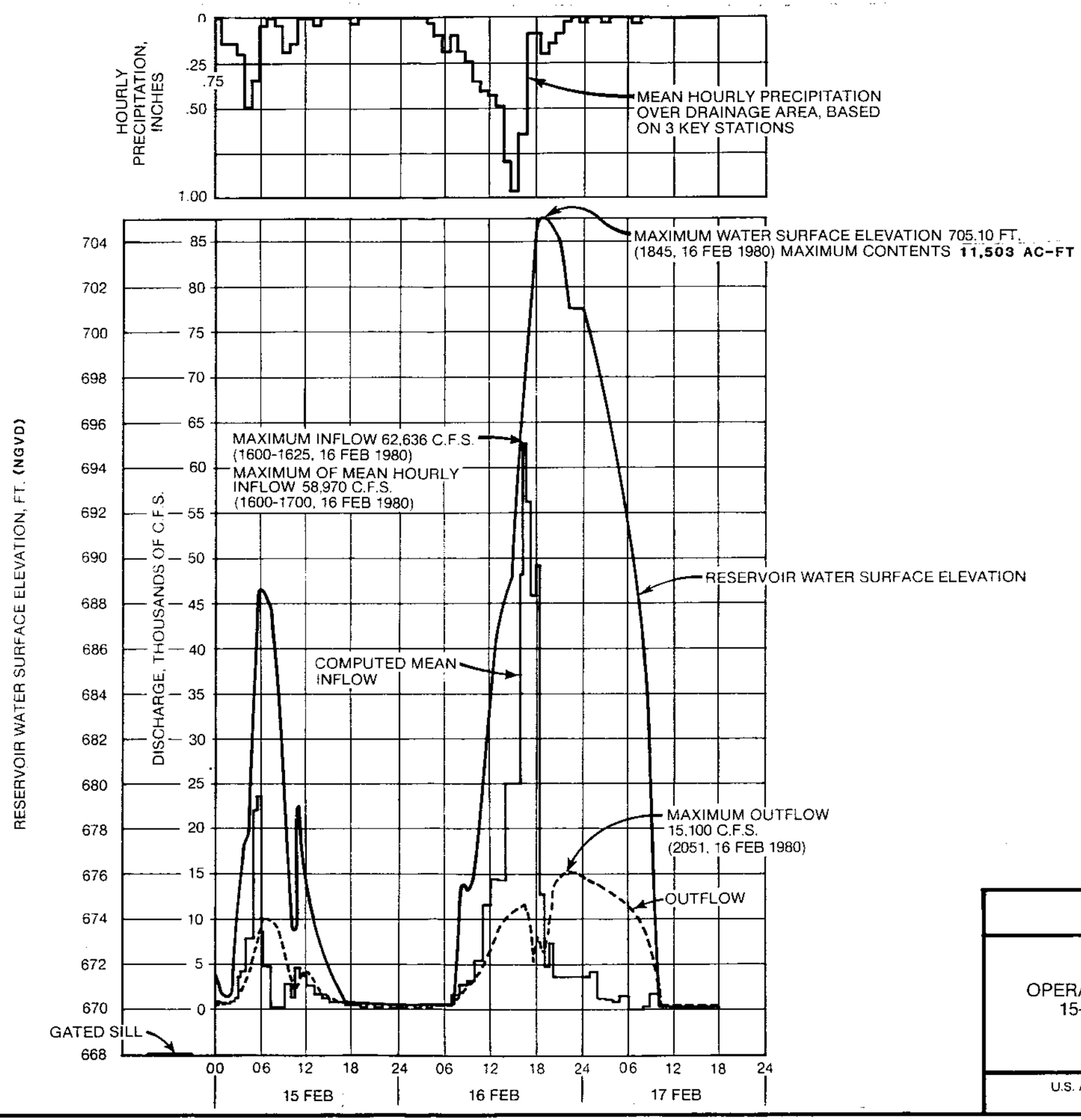
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

OPERATION HYDROGRAPHS
28 FEBRUARY-5 MARCH 1978

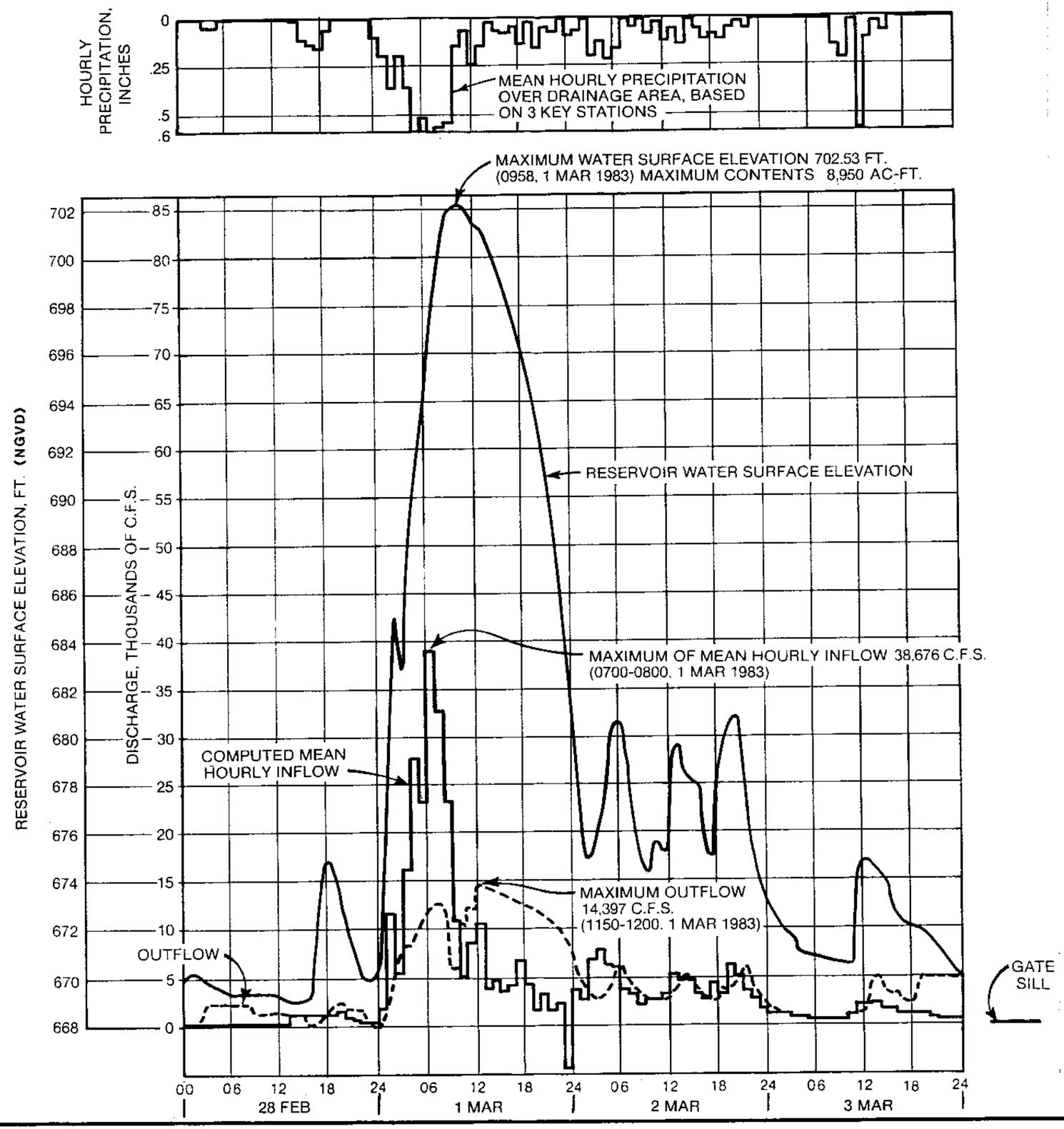
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

OPERATION HYDROGRAPHS
15-17 FEBRUARY 1980

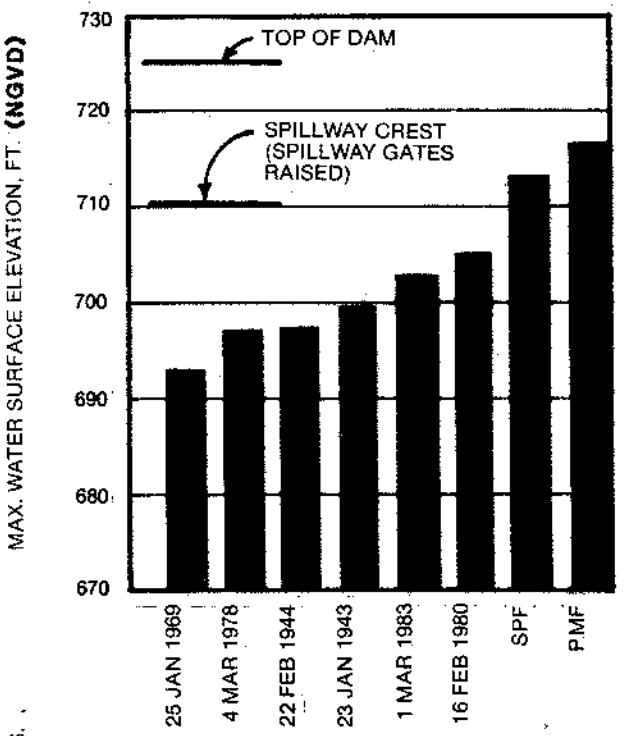
U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT

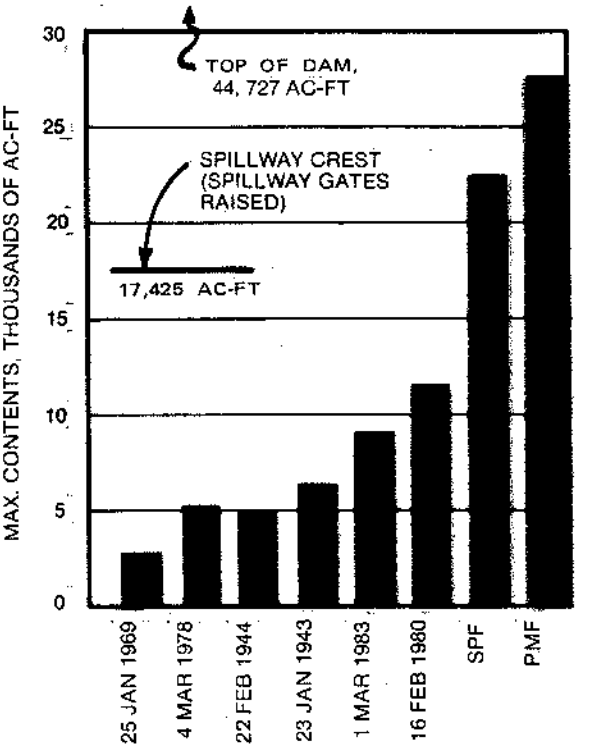


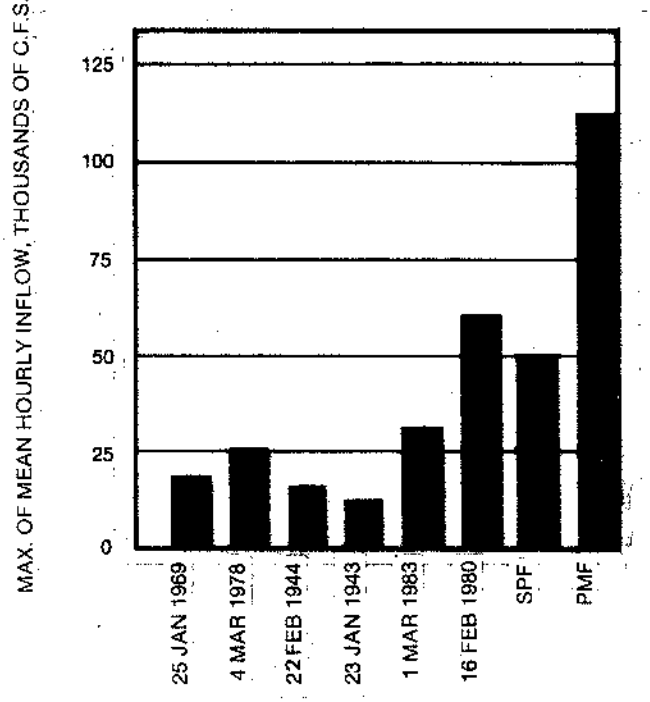

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

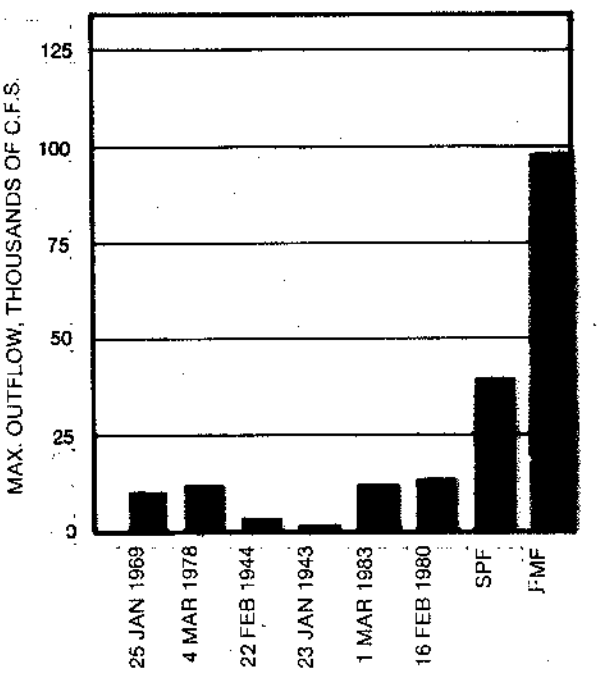
OPERATION HYDROGRAPHS
28 FEBRUARY - 3 MAR 1983

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT




SPF = STANDARD PROJECT FLOOD
PMF = PROBABLE MAXIMUM FLOOD

A listing of each of the values depicted here can be found in Table 8-01 and on Plates 8-01 through 8-08.

SEPULVEDA DAM
LOS ANGELES RIVER
CALIFORNIA

## COMPARISON OF HISTORICAL FLOODS AND DESIGN FLOODS

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT