

GILA RIVER AND TRIBUTARIES, ARIZONA AND NEW MEXICO

# FLOOD-DAMAGE REPORT

ON

FLOOD OF DECEMBER 1965 -- JANUARY 1966

## SALT AND GILA RIVERS GRANITE REEF DAM TO GILLESPIE DAM, ARIZONA



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

APRIL 1966

802.031

(20)

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FLOOD-DAMAGE REPORT  
FLOOD OF DECEMBER 1965 - JANUARY 1966  
ON SALT AND GILA RIVERS, ARIZONA

AUTHORITY

1. This report is submitted under the authority of Public Law 99, Eighty-fourth Congress, and pursuant to instruction in the Corps of Engineers manual entitled "Emergency Employment of Army Resources, Domestic Emergency Operations" (EM 500-1-1).

SCOPE

2. This report describes the flood that began the later part of December 1965 and continued into January 1966, and the resultant flood damages on the Salt and Gila Rivers, Arizona.

GENERAL DESCRIPTION

3. Location and extent.--The portion of the Salt River pertinent to this flood-damage report extends from Granite Reef Dam to the confluence with the Gila River, a distance of about 38 miles. The portion of Gila River pertinent to this report extends from the confluence with the Salt River to Gillespie Dam, a distance of about 34 miles. (See pls. 1 and 2). Both portions of each river lie entirely within Maricopa County.

4. The principal population centers that are affected in this report along the Salt River are the cities of Mesa, Tempe, Scottsdale, and Phoenix (including the community of South Phoenix), and along the Gila River, the towns of Buckeye and Arlington, and the community of Allenville.

STORM AND FLOOD

5. General.--Unusually heavy precipitation during November and December 1965, combined with cool temperatures and light winds, resulted in soil moisture conditions in the Salt and Verde River drainages conducive to heavy runoff. Precipitation during the month of December 1965 ranged from 8 to 12 inches in the upper Salt and Verde watersheds, breaking scores of precipitation records. Precipitation occurred on 8-11, 13-18, 21-23, and 29-31 December, with the largest amount occurring on 21-23 December. The rains of the 23rd and 30th fell on a heavy snow cover producing high runoff peaks.

6. Snow cover.--The water content of the snow cover on the Salt and Verde watersheds prior to the high runoff of 30-31 December 1965 was well above normal. Exact figures are not available as snow-course surveys were not made until 15 January 1966. However, on that date the water equivalent of snow cover on the Verde River watershed was about 137 percent of normal and on the Salt River watershed 200 percent of normal.

7. Precipitation.--An extreme amount of precipitation occurred during the months of November and December over all major watershed in Arizona. Storage gages collected two to three times normal precipitation for the period. In the Salt and Verde River drainages, over 15 inches of precipitation was reported at many stations, from 1 November through 31 December 1965.

8. Runoff.--Streamflow in the Salt and Verde Rivers varied from 11 to 16 times normal for the month of December. Reservoir inflow was particularly high as a result of the storms of 21-23 and 29-31 December. A summary of hydraulic information for reservoirs in the Salt and Verde River systems upstream of Painted Rock Dam preceding and following these storms is given in tables 1 through 6. On 30 December, large releases were initiated from these reservoirs to provide storage space for possible future floods. It was not necessary to make flood releases from Lake Pleasant on the Agua Fria River or San Carlos Reservoir on the Gila River.

9. According to provisional records by the U.S. Geological Survey, the peak flow of the Salt River at Granite Reef Dam was 67,000 cubic feet per second on 30-31 December and 66,000 cubic feet per second near Phoenix on 31 December. The maximum inflow to Painted Rock Reservoir, from Corps of Engineer records, was 55,900 cubic feet per second (6 hour average) on 2 January. Floodflows were contained in the reservoir and released at low discharges into the downstream channel. Releases started on 2 January and by 25 March, the 215,340 acre-feet of water impounded in the reservoir had been drained.

#### FLOODED AREA

10. Reservoir releases, which became floodwaters, flowed over Granite Reef Diversion Dam and on downstream through Mesa, Tempe, and Phoenix, generally staying within the normally dry streambed of the Salt River. After having traversed 38 miles along the Salt, the floodwaters then flowed westward in the Gila River which is covered with phreatophytic growth that caused the banks to be exceeded. Approximately 34 miles downstream from the mouth of the Salt, the floodwaters reached the silted-up Gillespie Diversion Dam, overtopped the dam and flowed on downstream to be impounded behind Painted Rock Dam.

Table 1

Reservoir Data  
Flood of December 1965-January 1966  
Roosevelt Dam - Salt River

Date	Reservoir capacity		Discharge	
	Content	Space remaining	Inflow	Outflow
	Acre-feet	Acre-feet	Cubic feet per second	Cubic feet per second
10 Dec 65..	848,400	533,600	20,700	500
11 Dec 65..	887,800	494,200	17,300	0
22 Dec 65..	989,100	392,900	31,400	0
23 Dec 65..	1,049,800	332,200	55,500	600
24 Dec 65..	1,170,400	211,600	14,900	900
25 Dec 65..	1,197,200	184,800	7,400	0
26 Dec 65..	1,210,400	171,600	3,600	0
30 Dec 65..	1,236,500	145,500	33,100	2,400
31 Dec 65..	1,321,200	60,800	33,800	41,400
1 Jan 66..	1,330,000	52,000	11,900	45,000
2 Jan 66..	1,296,900	85,100	6,900	46,000
3 Jan 66..	1,275,500	106,500	4,800	8,000

- NOTES:
1. Reservoir data as of 0001 MST on date shown.
  2. Information obtained from Salt River Valley Water Users Association.
  3. Peak inflow on Salt River was 60,000 c.f.s. on 23 December.
  4. Peak inflow on Salt River was 67,000 c.f.s. on 30 December.
  5. Peak inflow on Tonto Creek was 40,000 c.f.s. on 22 December.
  6. Maximum discharge of 46,000 c.f.s. flowed from 2100 MST on 1 January 1966 to 0400 MST on 2 January 1966.

Table 2

Reservoir Data  
Flood of December 1965-January 1966

Horse Mesa Dam - Salt River

Date	Reservoir capacity		Discharge	
	Content	Space remaining	Inflow	Outflow
	Acre-feet	Acre-feet	Cubic feet per second	Cubic feet per second
10 Dec 65..	241,800	3,200	500	400
11 Dec 65..	242,100	2,900	0	300
22 Dec 65..	243,500	1,500	0	600
23 Dec 65..	244,700	300	600	1,800
24 Dec 65..	243,500	1,500	900	1,100
25 Dec 65..	243,600	1,400	0	0
26 Dec 65..	243,600	1,400	0	0
30 Dec 65..	243,400	1,600	2,400	4,000
31 Dec 65..	242,200	2,800	41,400	36,000
1 Jan 66..	243,300	1,700	45,000	41,000
2 Jan 66..	238,400	6,600	16,000	15,000
3 Jan 66..	238,000	7,000	8,000	7,000

- NOTES:
1. Reservoir data as of 0001 MST on date shown.
  2. Information obtained from Salt River Valley Water Users Association.
  3. Maximum discharge of 41,800 c.f.s. flowed from 1500 MST on 31 Dec 65 to 1700 MST on 1 Jan 66.

Table 3

Reservoir Data  
Flood of December 1965-January 1966

Mormon Flat Dam - Salt River

Date	Reservoir capacity		Discharge	
	Content	Space remaining	Inflow	Outflow
	Acre-feet	Acre-feet	Cubic feet per second	Cubic feet per second
10 Dec 65..	44,100	13,900	400	0
11 Dec 65..	49,600	8,400	300	0
22 Dec 65..	57,600	400	600	3,600
23 Dec 65..	57,000	1,000	1,800	4,500
24 Dec 65..	57,300	700	1,100	1,900
25 Dec 65..	57,300	700	0	1,200
26 Dec 65..	55,500	2,500	0	600
30 Dec 65..	55,400	2,600	4,000	4,000
31 Dec 65..	57,700	300	36,000	36,000
1 Jan 66..	53,000	5,000	41,000	40,000
2 Jan 66..	50,700	7,300	15,000	11,000
3 Jan 66..	53,300	4,700	7,000	8,000

- NOTE:
1. Reservoir data as of 0001 MST on date shown.
  2. Information obtained from Salt River Valley Water Users Association.
  3. Maximum discharge of 60,000 c.f.s. flowed from 1700 to 1900 MST inclusive, on 1 Jan 66.

Table 4

Reservoir Data  
Flood of December 1965-January 1966

Stewart Mtn. Dam - Salt River

Date	Reservoir capacity		Discharge	
	Content	Space remaining	Inflow	Outflow
	Acre-feet	Acre-feet	Cubic feet per second	Cubic feet per second
10 Dec 65..	43,800	26,200	0	0
11 Dec 65..	44,400	25,600	0	0
22 Dec 65..	52,800	17,200	3,600	200
23 Dec 65..	61,000	9,000	4,500	3,700
24 Dec 65..	63,900	6,100	1,900	3,700
25 Dec 65..	62,000	8,000	1,200	2,200
26 Dec 65..	60,800	9,200	600	2,100
30 Dec 65..	57,800	12,200	4,000	9,700
31 Dec 65..	58,400	11,600	36,000	37,600
1 Jan 66..	57,300	12,700	40,000	40,000
2 Jan 66..	60,600	9,400	11,000	10,000
3 Jan 66..	61,100	8,900	8,000	7,000

- NOTE:
1. Reservoir data as of 0001 MST on date shown.
  2. Information obtained from Salt River Valley Water Users Association.
  3. Maximum discharge was 51,600 cubic feet per second at 1900 MST on 1 January 1966.

Table 5

Reservoir Data  
Flood of December 1965-January 1966

Horseshoe Dam - Verde River

Date	Reservoir capacity		Discharge	
	Content	Space remaining	Inflow	Outflow
	Acre-feet	Acre-feet	Cubic feet per second	Cubic feet per second
10 Dec 65..	34,100	108,700	9,400	1,400
11 Dec 65..	49,400	93,400	14,700	1,600
22 Dec 65..	75,200	67,600	8,300	1,600
23 Dec 65..	97,100	45,700	19,700	2,900
24 Dec 65..	131,900	10,900	6,800	3,500
25 Dec 65..	138,200	4,600	3,600	0
26 Dec 65..	137,900	4,900	2,700	4,200
30 Dec 65..	134,300	8,500	22,800	300
31 Dec 65..	140,200	2,600	29,500	25,700

- NOTE:
1. Reservoir data as of 0001 MST on date shown.
  2. Information obtained from Salt River Valley Water Users Association.
  3. Data not available for 1-3 January 1966.

Table 6

Reservoir Data  
Flood of December 1965-January 1966

Bartlett Dam - Verde River

Date	Reservoir capacity		Discharge	
	Content	Space remaining	Inflow	Outflow
	Acre-feet	Acre-feet	Cubic feet per second	Cubic feet per second
10 Dec 65..	60,100	119,400	1,400	100
11 Dec 65..	63,100	116,400	1,600	100
22 Dec 65..	117,200	62,300	1,600	0
23 Dec 65..	124,000	55,500	2,900	0
24 Dec 65..	129,800	49,700	3,500	0
25 Dec 65..	136,800	42,700	4,200	0
26 Dec 65..	145,200	34,300	4,200	0
30 Dec 65..	163,500	16,000	3,100	300
31 Dec 65..	174,900	4,600	25,700	28,800
1 Jan 66..	168,500	11,000	*	8,200
2 Jan 66..	168,800	10,700	*	4,600
3 Jan 66..	168,600	10,900	*	3,200

- NOTE:
1. Reservoir data as of 0001 MST on date shown.
  2. Information obtained from Salt River Valley Water Users Association.
  3. Peak inflow on Verde was 26,200 c.f.s. on 11 Dec 65.
  4. Peak inflow on Verde was 47,100 c.f.s. on 22 Dec 65.
  5. Peak inflow on Verde was 42,600 c.f.s. on 31 Dec 65.
  6. Maximum discharge of 31,700 c.f.s. flowed from 1100 MST to 1700 MST on 31 Dec 65.

\* Data not available.

## FLOOD DAMAGES

11. General.--Damage data were collected and evaluated by Los Angeles District personnel with the cooperation of many Federal, State, County, city, and local agencies and individuals - including the U.S. Soil Conservation Service, the U.S. Geological Survey, Arizona State Departments of Highway and Civil Defense, Maricopa County Flood Control District and Highway Department, Phoenix City Engineering, Water and Sewers, Sanitation and Street Maintenance Departments, Arizona Public Service Company, Salt River Project, Sky Harbor Airport, businesses, and local residents.

12. Flood damages along the Salt River began with the inundation of a group of industrial developments near Country Club Drive which is about 10 miles downstream of Granite Reef Dam and continued to occur with consistency along the remaining 28 miles. The total flood damages include physical damage incurred by direct effect of floodwaters, emergency losses which include evacuation, flood fighting, relief, and use of alternate facilities; and business losses such as income and wages, losses due to delays, and increased costs of operation. The largest single item of damage along the Salt River occurred to the gravel companies that are situated in the normally dry river bottom.

13. Flood damages along the Gila River were somewhat intermittent. The agricultural and streets and highways categories comprise 70 percent of the total damages.

14. Residential.--The flood damage to residential property along the Salt River amounts to only one-tenth of one percent of the total damages sustained by the other categories of value. This is mainly because there are but a few homes that lie within the river bottom and these are substandard. Along the Gila River, these damages amount to about 14 percent of the total damages. Like the homes damaged along the Salt River, these too are substandard homes that belong primarily to migrant farmworkers.

15. Commercial.--These damages are but a small percent of the total damages. Most of the damages in this category along the Salt River were sustained by the businesses along North Scottsdale Road, Tempe. No major physical damage to commercial establishments along the Gila River could be found.

16. Industrial.--Damages sustained in this category comprise about 42 percent of the total damages along the Salt River, estimated at \$2,439,000. Of this total, approximately \$1,967,000 were sustained by the gravel companies that have their facilities located in the river bottom. These damages are composed of the loss of stock-piled material, repair of equipment, repair and erection of a rock crusher, emergency work conducted during the flood, cleanup, and extra haulage of materials caused by road washouts. The second largest estimate of damage was sustained by the cattle feedlots which are located within the river bottom. The \$32,000 industrial damage along the Gila River was sustained by a gravel-pit operation located in the river bottom near Buckeye.

17. Public.--The largest item of damage in this category is that sustained by Sky Harbor Airport. During the peak flow, about 2,600 feet of the east-west (jet) runway was inundated by the Salt River floodwaters which caused \$235,000 damage to airport facilities. Air traffic continued on schedule with the exception of one flight that was canceled and another flight that was diverted to Tucson. Included in this public category are the funds expended by the Red Cross, Salvation Army, Civil Defense, and National Guard for the care of the flood victims during the flood. There was no physical damage to public property along the Gila River.

18. Utility.--These include flood damage to the following facilities: sewage, water distribution, telephone, electrical power distribution, and gas distribution. All of the damages in this category occurred along the Salt River and amount to about \$1,160,000. The floodwaters washed out the sewage oxidation ponds of the treatment plants of Mesa, Tempe, Scottsdale, and a Phoenix sewage main that crossed the river at 19th Avenue. Although all of the damaged facilities were discharging raw sewage into the river, there was no real threat to human health because of the large volume of water. Also, county and city health officials added chemicals to the floodwaters to minimize this possibility. The damage to the water-distribution system of the above-mentioned cities consisted of washed out water mains that cross the river. Phoenix had an added cost for the cleanup of silt and repair of pumps at their filtration plants. Washed out cable lines at Scottsdale Road and Country Club Drive were the major damages sustained by the Mountain States Telephone Company. Electrical power was interrupted for two hours on 31 December 1965 in northeast Phoenix and certain portions of Scottsdale as a result of the toppling of transmission towers when their foundations were undercut. The Arizona Public Service Company lost five towers and the Salt River Project lost one. The Arizona Public Service Company also lost three natural gas pipelines that crossed the riverbed.

19. Streets, highways, and bridges.--All of the crossings except for three - the Central Avenue, Maricopa freeway, and Tempe bridges - along the Salt River were washed out. Of the three, only the Tempe bridge escaped unscathed. The southbound lane of the Central Avenue bridge was closed on 1 January 1966 when the supporting piling under one of the piers dropped 4 feet. Approximately 750 feet of asphalt shoulder, 100 feet of roadway, and a portion of the freeway bridge east approachway embankment was eroded away by the floodwaters. Only around-the-clock efforts by the State Highway Department prevented further erosion through the dumping of large rocks and old car bodies into the affected area. The cost of restoration for the two bridges is estimated at \$290,000. Until 17 January when five additional crossings were opened to traffic, the three above-mentioned crossings had to handle the entire traffic load that was normally carried by 17 crossings. The loss due to delay and extra traveling distance along the Salt River is estimated at \$320,000. Along the Gila River, all crossings were washed out and the estimated cost of restoration is about \$85,000. The largest single item of damage was that sustained by the U.S. Highway No. 80 bridge and roadway. The cost of restoration is estimated to be \$45,000.

20. Irrigation works.--The Salt River Project estimates the damage to their canals and Granite Reef Dam at \$10,000. A dredge used to clear silt from behind Granite Reef Dam capsized and sank on 31 December 1965. It is estimated that \$25,000 will be needed to put the dredge back into operation. There were no major damages to irrigation works on the Gila River.

21. Agricultural.--Damages in this category include crop loss, the cost of land releveling, irrigation ditch washout, dike washout, fertilizer loss, feed loss, and road washout. These damaged along the Salt River amount to about \$17,000 and along the Gila River about \$80,000.

22. Railroad.--Damages to railroad facilities were minor and only occurred in the Phoenix area. These are estimated at \$4,000.

23. Summary.--A summary of the total damages that include both physical damages, business losses, and emergency costs along the Salt and Gila Rivers is given in the following table:

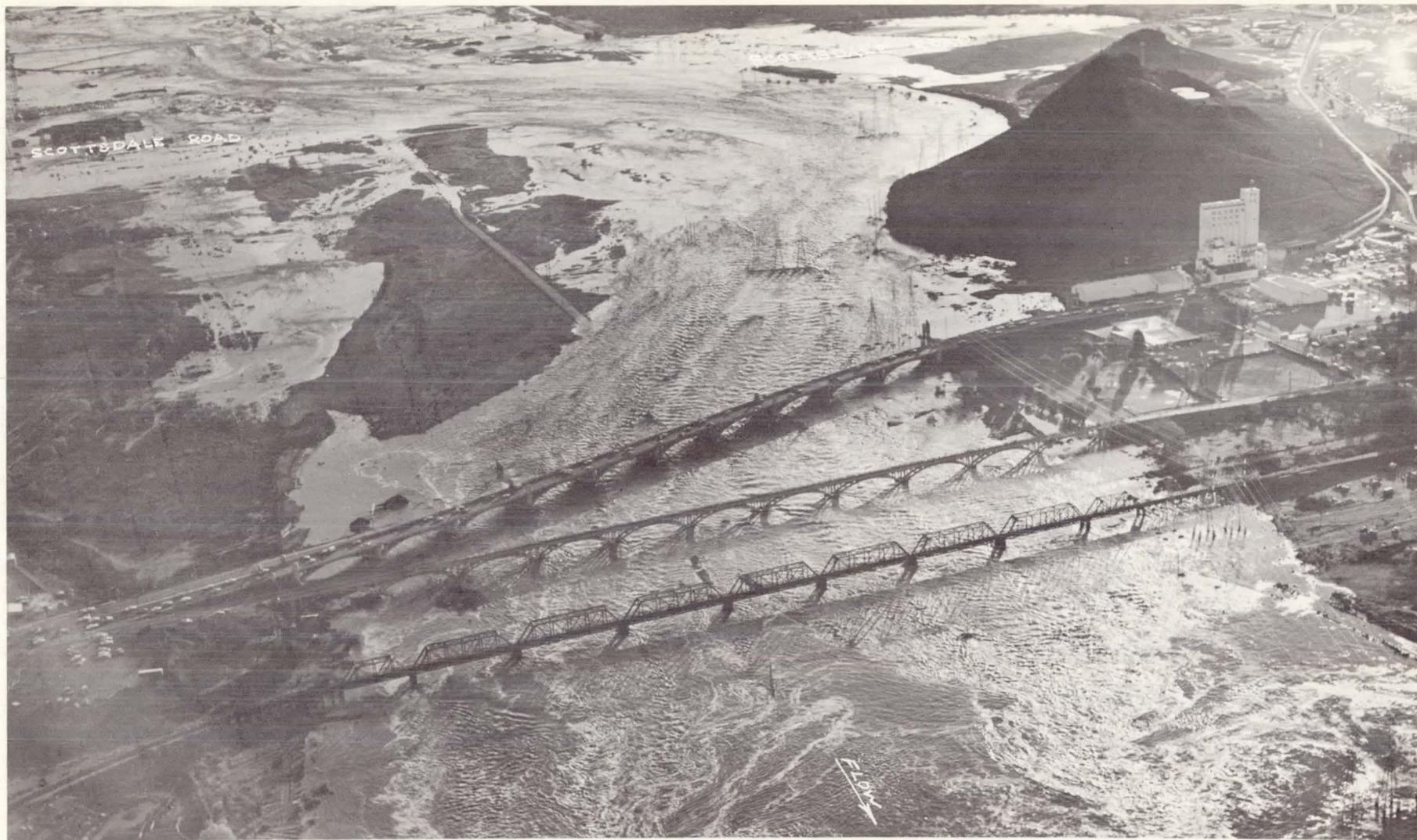
Table 7

Summary of damages from the December 1965 - January 1966 flood along  
the Salt and Gila Rivers

Type of property	Damages		
	Physical damages	Emergency costs and business losses	Total
Salt River, Granite Reef Dam to mouth:			
Residential.....	\$5,000	\$1,000	\$6,000
Commercial.....	65,000	38,000	103,000
Industrial.....	2,041,000	398,000	2,439,000
Public.....	230,000	138,000	368,000
Utilities.....	892,000	268,000	1,160,000
Streets, highways, and bridges.	1,326,000	360,000	1,686,000
Irrigation works.....	35,000	2,000	37,000
Agricultural.....	15,000	2,000	17,000
Railroad.....	3,000	1,000	4,000
Total.....	4,612,000	1,208,000	5,820,000
Gila River, mouth of Salt River to Gillespie Dam:			
Residential.....	32,000	3,000	35,000
Commercial.....	0	3,000	3,000
Industrial.....	27,000	8,000	35,000
Public.....	0	6,000	6,000
Utilities.....	0	0	0
Streets, highways, and bridges.	85,000	6,000	91,000
Irrigation works.....	0	0	0
Agricultural.....	72,000	8,000	80,000
Railroad.....	0	0	0
Total.....	216,000	34,000	250,000



SALT RIVER - Looking southwest of development along Scottsdale Road, Tempe. Photograph - courtesy of Don Keller, Phoenix, Ariz.



SALT RIVER - Looking southeast at (top to bottom) the new U.S. Highway No. 60-70-89 bridge, the old abandoned highway bridge, and the Southern Pacific railroad bridge, Tempe. Photograph - courtesy of Don Keller, Phoenix, Ariz.



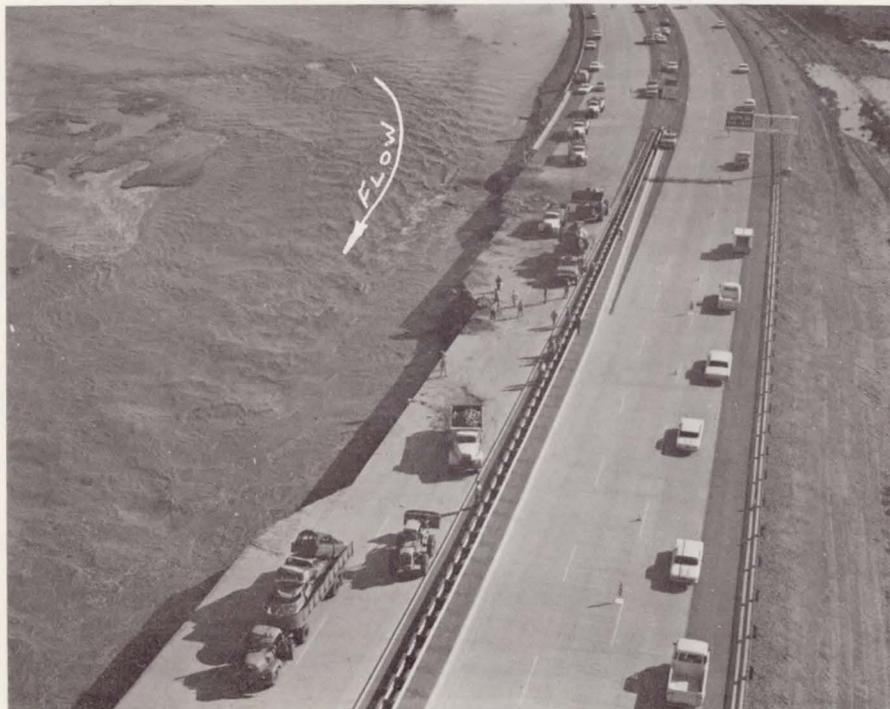
SALT RIVER - Looking southwest from 48th Street, Phoenix, at Sky Harbor Airport. Photograph - courtesy of Don Keller, Phoenix, Ariz.



SALT RIVER - Flooding in the vicinity of 19th Avenue, Phoenix.



SALT RIVER - Looking northeast in the vicinity of 36th Street, Phoenix. Photograph - courtesy of Markow Photography, Phoenix, Arizona.



SALT RIVER - Looking at the Maricopa Freeway washout near 30th Street, Phoenix. Photograph - courtesy of Markow Photography, Phoenix, Arizona.



SALT RIVER - Looking south along Scottsdale Road.  
Photograph - courtesy of Maricopa County Highway  
Department, Arizona.



SALT RIVER - The 24th Street culvert after the flood.  
Photograph - courtesy of Maricopa County Flood Control  
District, Arizona.



SALT RIVER - Looking southeast at the 7th Street culvert. Photograph - courtesy of Maricopa County Flood Control District, Arizona.



SALT RIVER - Looking upstream at the Central Avenue bridge pier failure. Photograph - courtesy of Maricopa County Flood Control District, Arizona.



GILA RIVER - Looking downstream from the Salt and Gila River confluence. Photograph - courtesy of Arizona Game and Fish Department.



GILA RIVER - Looking northeast at homes alongside Jackrabbit Trail. Photograph - courtesy of Arizona Game and Fish Department.



GILA RIVER - Looking north up Miller Road at Buckeye. Photograph - courtesy of Arizona Game and Fish Department.



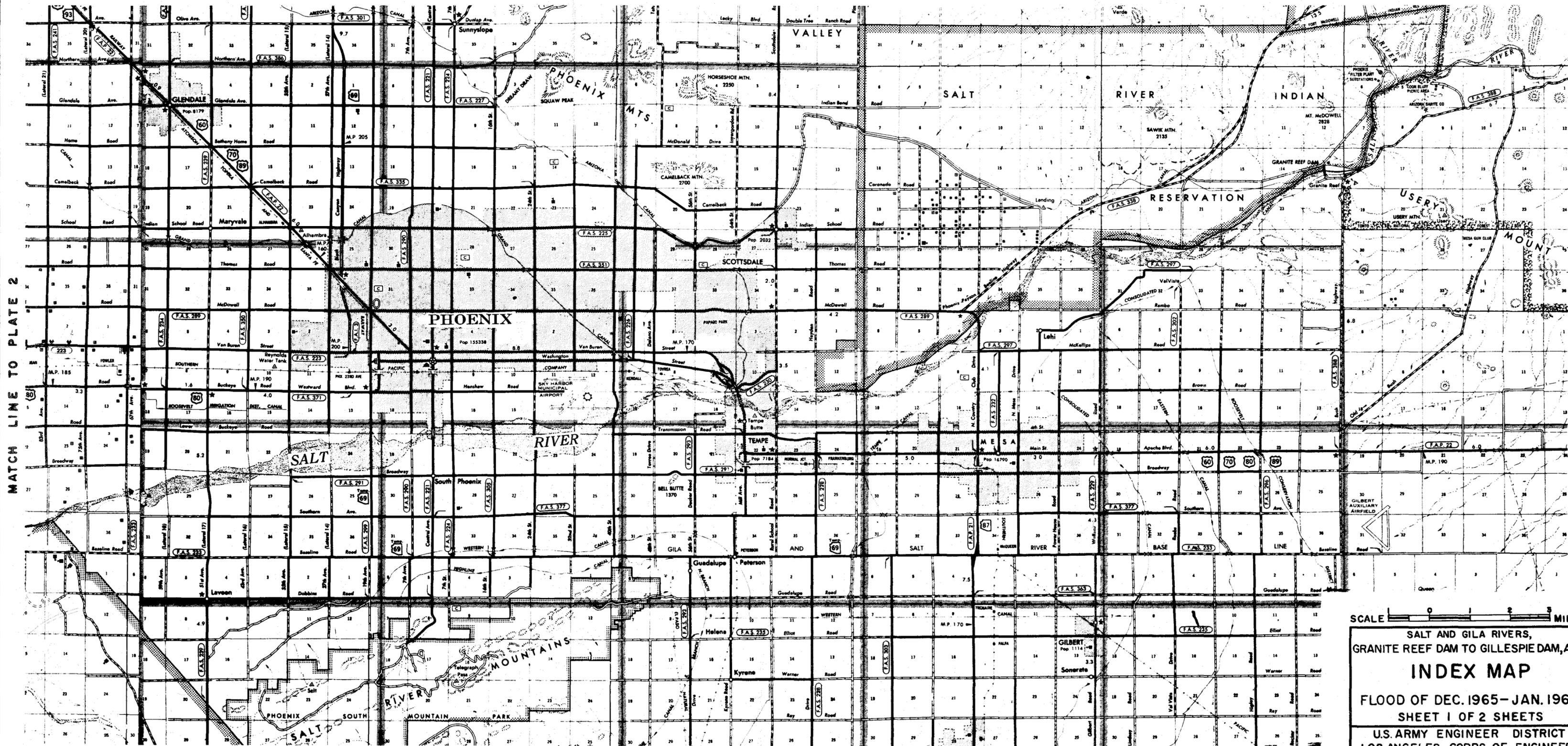
GILA RIVER - Looking upstream. Robbins Butte is center right. Photograph - courtesy of Arizona Game and Fish Department.



GILA RIVER - Looking upstream. Powers Butte is center right. Photograph - courtesy of Arizona Game and Fish Department.



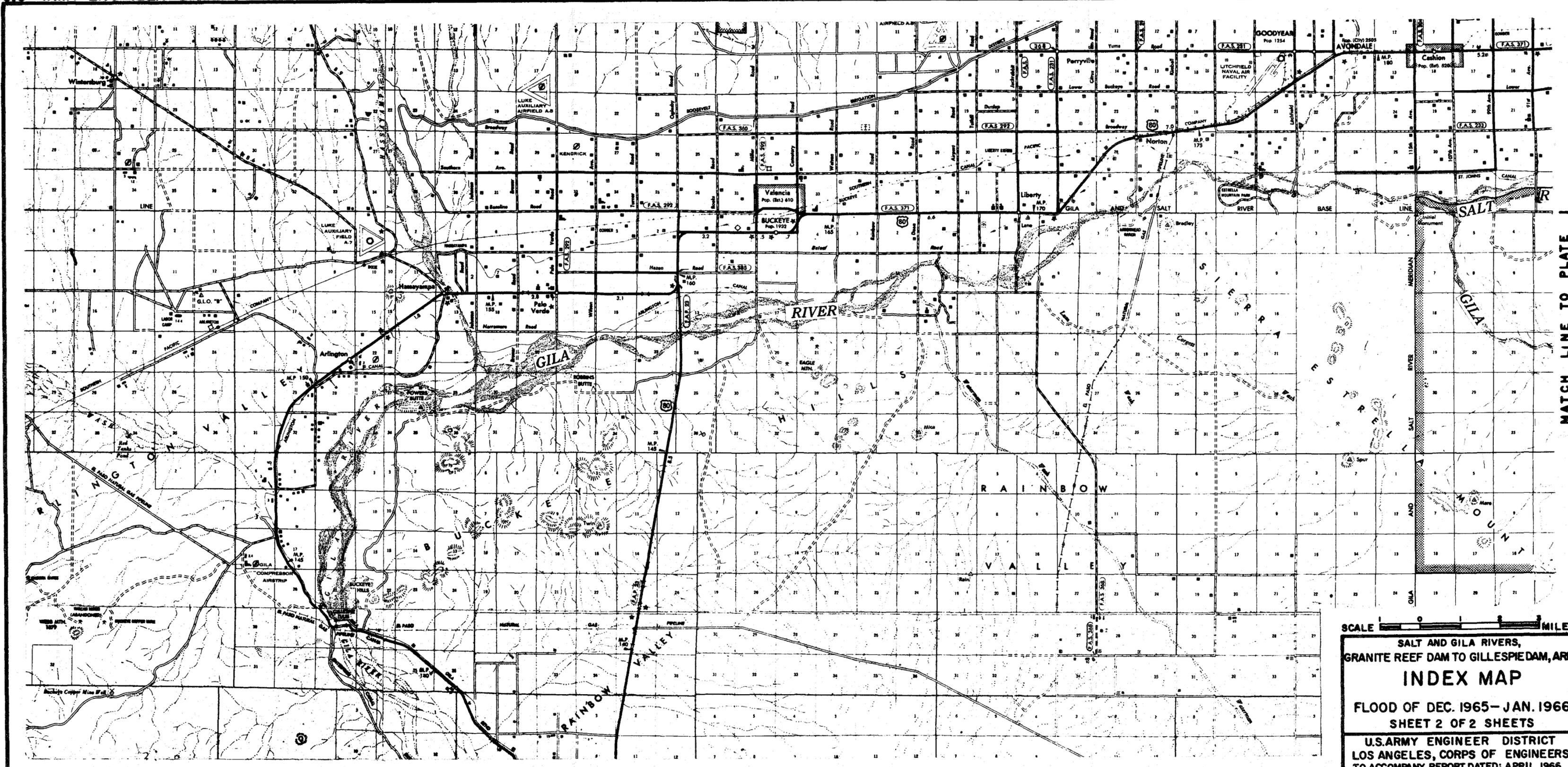
GILA RIVER - Looking upstream at Gillespie Dam. Photograph - courtesy of Arizona Game and Fish Department.



MATCH LINE TO PLATE 2

SCALE 0 1 2 3 MILES

SALT AND GILA RIVERS,  
 GRANITE REEF DAM TO GILLESPIE DAM, ARIZ  
**INDEX MAP**  
 FLOOD OF DEC. 1965 - JAN. 1966  
 SHEET 1 OF 2 SHEETS  
 U.S. ARMY ENGINEER DISTRICT  
 LOS ANGELES, CORPS OF ENGINEERS  
 TO ACCOMPANY REPORT DATED: APRIL 1966



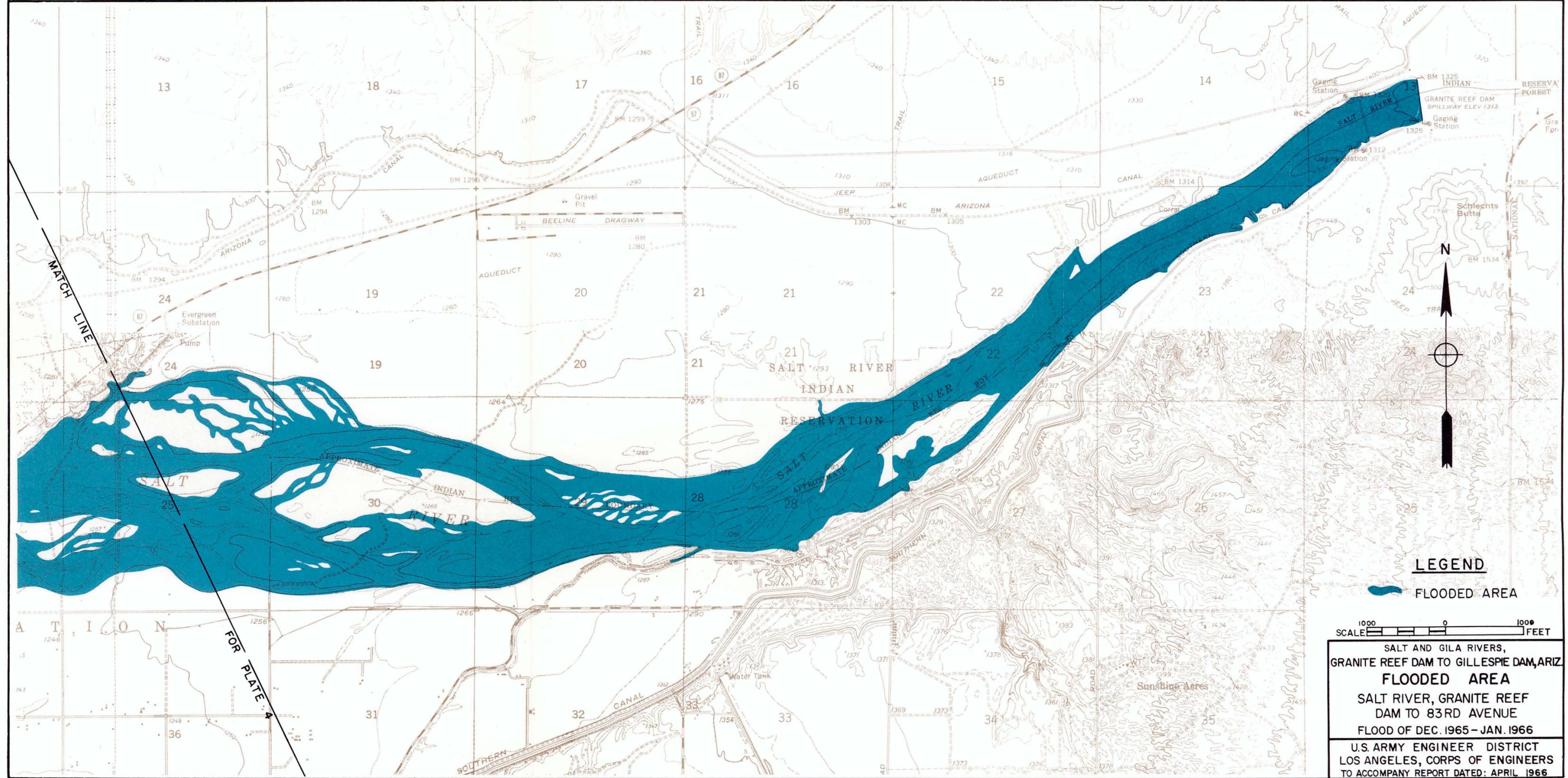
MATCH LINE TO PLATE I

SCALE 0 1 2 MILES

SALT AND GILA RIVERS,  
 GRANITE REEF DAM TO GILLESPIEDAM, ARIZ  
**INDEX MAP**

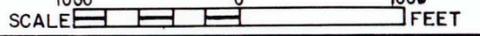
FLOOD OF DEC. 1965 - JAN. 1966  
 SHEET 2 OF 2 SHEETS

U.S. ARMY ENGINEER DISTRICT  
 LOS ANGELES, CORPS OF ENGINEERS  
 TO ACCOMPANY REPORT DATED: APRIL 1966



**LEGEND**

 FLOODED AREA

1000 0 1000  
SCALE  FEET

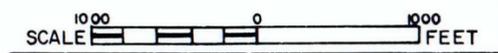
SALT AND GILA RIVERS,  
GRANITE REEF DAM TO GILLESPIE DAM, ARIZ.  
**FLOODED AREA**  
SALT RIVER, GRANITE REEF  
DAM TO 83RD AVENUE  
FLOOD OF DEC. 1965 - JAN. 1966

U.S. ARMY ENGINEER DISTRICT  
LOS ANGELES, CORPS OF ENGINEERS  
TO ACCOMPANY REPORT DATED: APRIL 1966



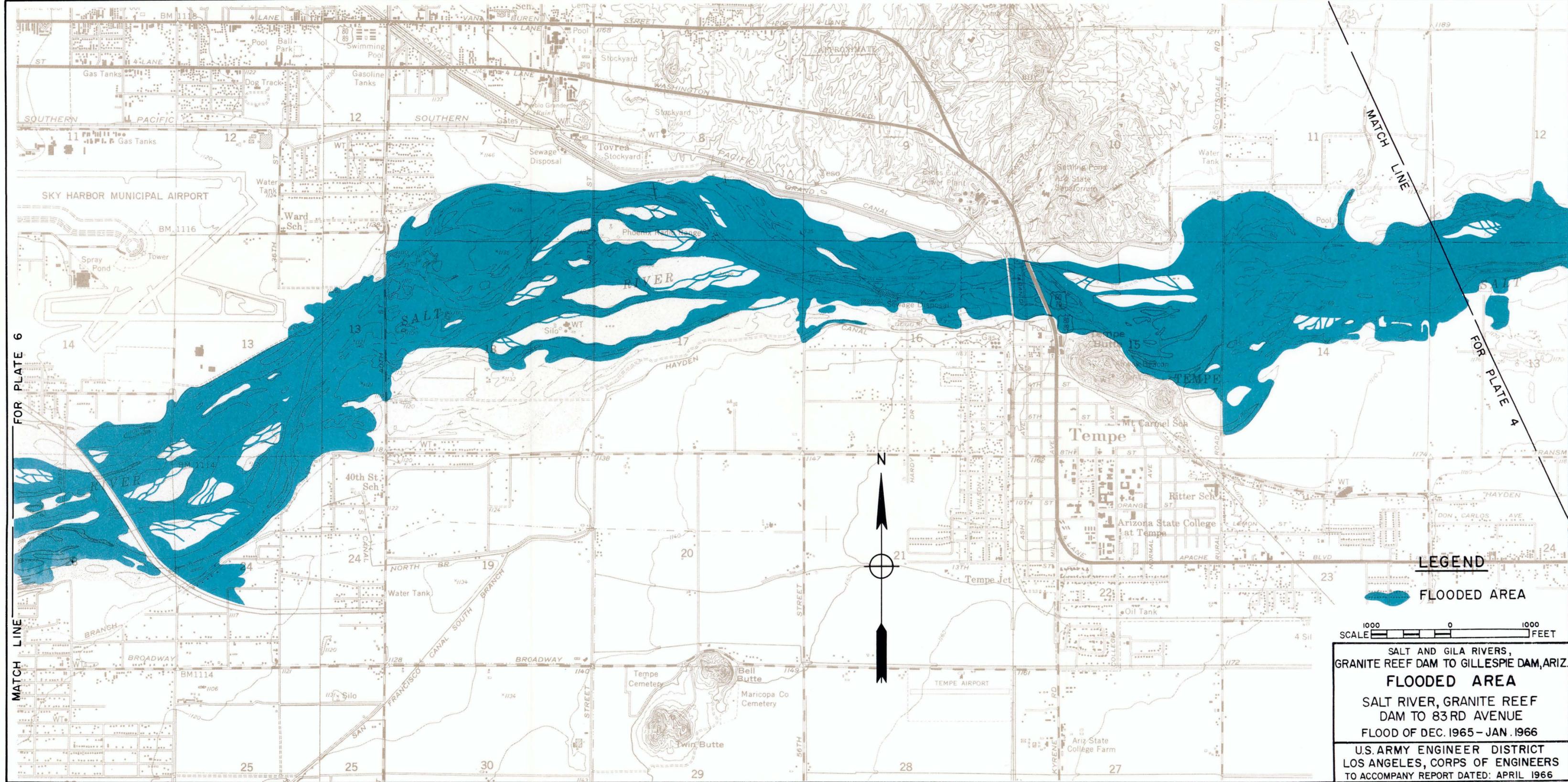
**LEGEND**

 FLOODED AREA

SCALE  FEET

SALT AND GILA RIVERS,  
 GRANITE REEF DAM TO GILLESPIE DAM, ARIZ.  
**FLOODED AREA**  
 SALT RIVER GRANITE REEF  
 DAM TO 83RD AVENUE  
 FLOOD OF DEC. 1965 - JAN. 1966

U.S. ARMY ENGINEER DISTRICT  
 LOS ANGELES, CORPS OF ENGINEERS  
 TO ACCOMPANY REPORT DATED: APRIL 1966



FOR PLATE 6

MATCH LINE

MATCH LINE

FOR PLATE 4

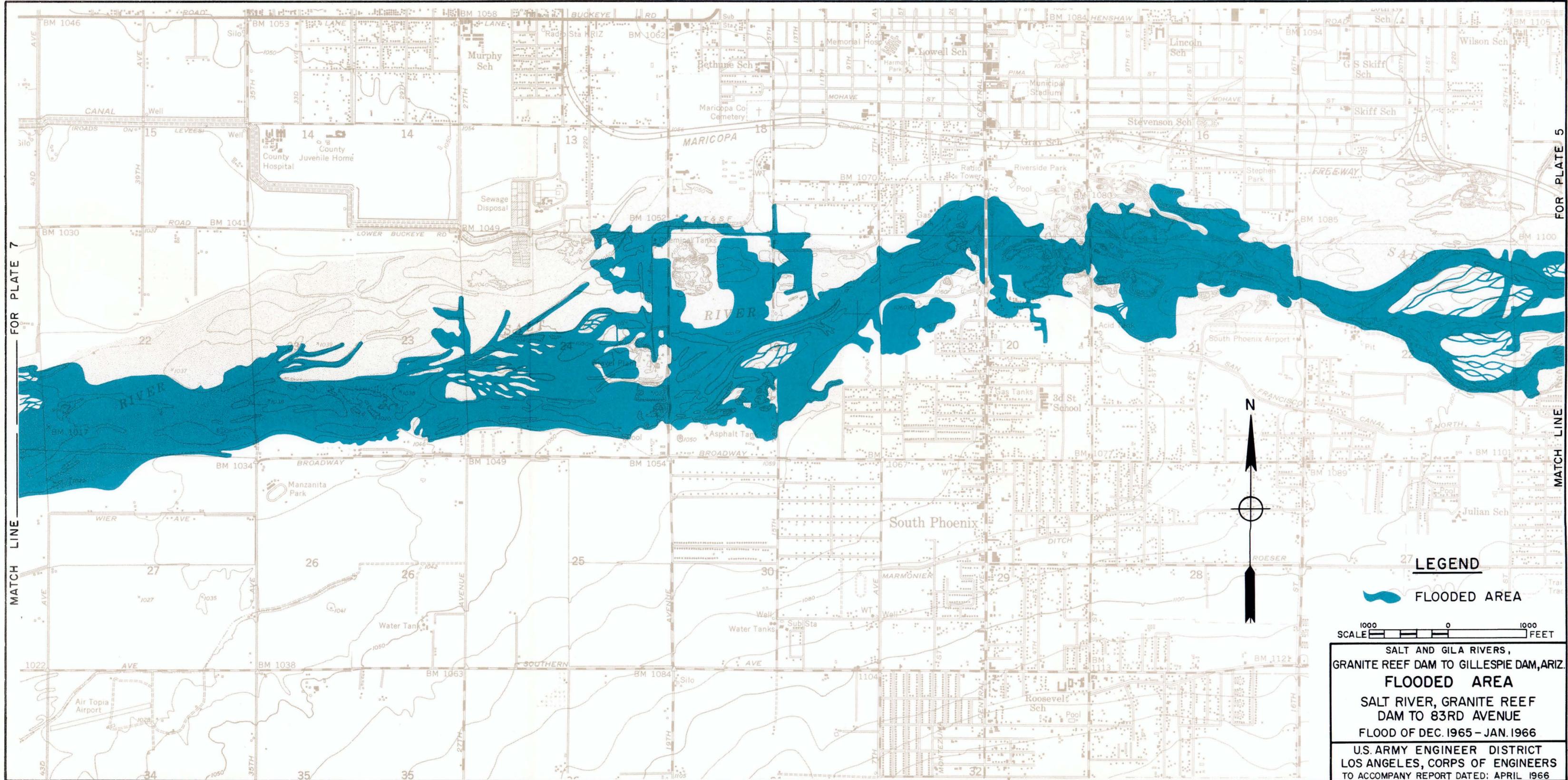
**LEGEND**

 FLOODED AREA

SCALE 1000 0 1000 FEET

SALT AND GILA RIVERS,  
 GRANITE REEF DAM TO GILLESPIE DAM, ARIZ.  
**FLOODED AREA**  
 SALT RIVER, GRANITE REEF  
 DAM TO 83RD AVENUE  
 FLOOD OF DEC. 1965 - JAN. 1966

U.S. ARMY ENGINEER DISTRICT  
 LOS ANGELES, CORPS OF ENGINEERS  
 TO ACCOMPANY REPORT DATED: APRIL 1966

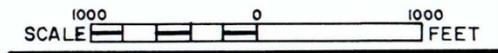


MATCH LINE FOR PLATE 7

FOR PLATE 5 MATCH LINE

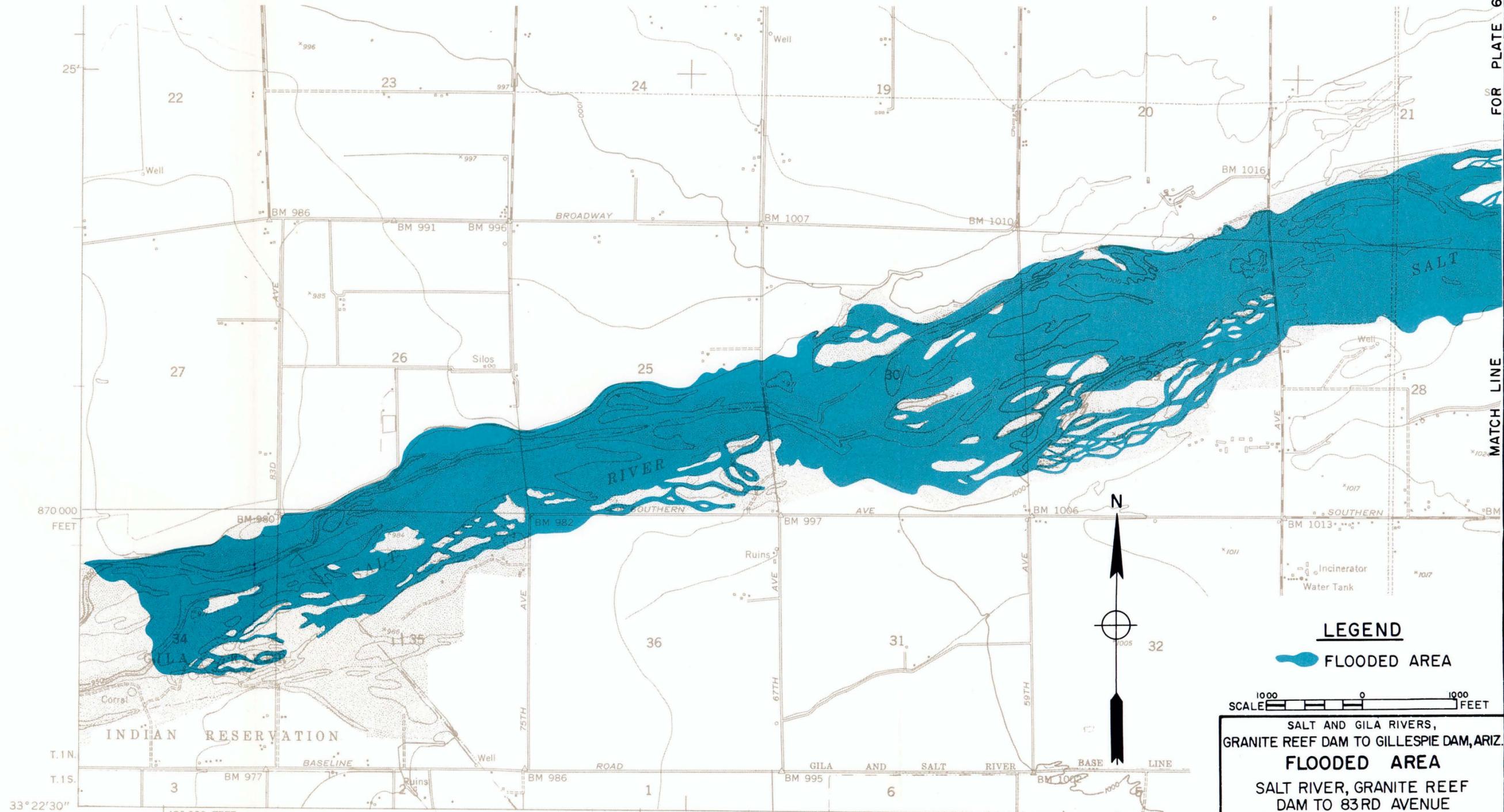
**LEGEND**

 FLOODED AREA

SCALE  FEET

SALT AND GILA RIVERS,  
 GRANITE REEF DAM TO GILLESPIE DAM, ARIZ.  
**FLOODED AREA**  
 SALT RIVER, GRANITE REEF  
 DAM TO 83RD AVENUE  
 FLOOD OF DEC. 1965 - JAN. 1966

U.S. ARMY ENGINEER DISTRICT  
 LOS ANGELES, CORPS OF ENGINEERS  
 TO ACCOMPANY REPORT DATED: APRIL 1966



**LEGEND**  
 FLOODED AREA

SCALE 1000 0 1000 FEET

**SALT AND GILA RIVERS,  
 GRANITE REEF DAM TO GILLESPIE DAM, ARIZ.  
 FLOODED AREA**

SALT RIVER, GRANITE REEF  
 DAM TO 83RD AVENUE  
 FLOOD OF DEC. 1965 - JAN. 1966

U.S. ARMY ENGINEER DISTRICT  
 LOS ANGELES, CORPS OF ENGINEERS  
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FILE NO. 448/142 PLATE 7

FOR PLATE 6

MATCH LINE